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REPORTS OF THE

DEPARTMENT OF THE INTERIOR

FOR THE FISCAL YEAR ENDED JUNE 30

1910

ADMINISTRATIVE REPORTS

IN 2 VOLUMES

VOLUME I

SECRETARY OF THE INTERIOR
BUREAUS, EXCEPT OFFICE OF INDIAN AFFAIRS
ELEEMOSYNARY INSTITUTIONS
NATIONAL PARKS AND RESERVATIONS

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REPORTS OF THE DEPARTMENT OF THE INTERIOR.

Administrative reports, in 2 volumes.
  Vol. I. Secretary of the Interior.
    Bureaus, except Office of Indian Affairs.
    Eleemosynary institutions.
    National parks and reservations.
  Vol. II. Indian Affairs.
    Territories.
Report of the Commissioner of Education, in 2 volumes.

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REPORT OF THE SECRETARY OF THE INTERIOR.

BUREAUS OF THE INTERIOR DEPARTMENT.

GENERAL LAND OFFICE.

Organized as a bureau of the Treasury Department under act of April 25, 1812 (2 Stat. L., 716).

First Commissioner, Edward Tiffin, of Ohio; appointed May 7, 1812.

Became a bureau of the Interior Department when that department was organized under the act of March 3, 1849 (9 Stat. L., 395).

INDIAN OFFICE.

Organized as a bureau of the War Department under act of July 9, 1832 (4 Stat. L., 564).

First Commissioner, Elbert Herring, of New York; appointed July 10, 1832.

Became a bureau of the Interior Department when that department was organized.

BUREAU OF PENSIONS.

Organized as a bureau of the War Department under act of March 2, 1833 (4 Stat. L., 622).

First Commissioner, James L. Edwards, of Virginia; appointed March 3, 1833.

Became a bureau of the Interior Department when that department was organized.

PATENT OFFICE.

Organized as a bureau of the State Department under act of March 4, 1836 (5 Stat. L., 117).

First Commissioner, Henry S. Ellsworth, of Connecticut; appointed July 4, 1836.

Became a bureau of the Interior Department when that department was organized.

BUREAU OF EDUCATION.

Organized under act of March 2, 1867 (14 Stat. L., 434).

Became a bureau of the Interior Department July 1, 1869, under act of July 20, 1868 (15 Stat. L., 106).

First Commissioner, Henry Barnard, of Connecticut; appointed March 14, 1867.

GEOLOGICAL SURVEY.

Organized as a bureau of the Interior Department under act of March 3, 1879 (20 Stat. L., 394).

First Director, Clarence King, of New York; appointed April 14, 1879.

RECLAMATION SERVICE.

Organized under act of June 17, 1902 (32 Stat. L., 388), under the Director of the Geological Survey, Charles D. Walcott.

First Director, F. H. Newell, of Pennsylvania; appointed March 9, 1907.

BUREAU OF MINES.

Organized as a part of the Interior Department under the act of May 16, 1910 (36 Stat., 369); first director, Joseph A. Holmes, of North Carolina, appointed September 3, 1910.

REPORT OF THE SECRETARY OF THE INTERIOR.

WASHINGTON, D. C., *December 1, 1910.*

SIR: I have the honor to submit for your consideration my second annual report of the operations of the Department of the Interior, together with the report of the bureaus, offices, institutions, and Territories under its supervision.

ORIGIN AND PRINCIPAL FUNCTIONS OF THE INTERIOR DEPARTMENT.

As a result of the accession of territory following the Mexican war and the great increase in population, wealth, and business throughout the country, an executive department which should transact the public business relating to domestic affairs was urgently demanded. At that time the work pertaining to the Patent Office was under the supervision of the Secretary of State; to the General Land Office and the Census under the Secretary of the Treasury; to Indian Affairs under the Secretary of War; and pensions were granted under the joint supervision of the Secretary of War and of the Secretary of the Navy. Accordingly, Congress, by the act of March 3, 1849, entitled "An act to establish the Home Department * * *," created the Department of the Interior. This act conferred administrative authority upon the Secretary of the Interior over the General Land Office, the Patent Office, the Office of Indian Affairs, and the Pension Office; also supervision and control over the officers of the Census, and over accounts of marshals, clerks, and other officers of the United States courts; jurisdiction over the Commissioner of Public Buildings in Washington, over the warden and inspectors of the District of Columbia penitentiary, and over the lead and other mines of the United States.

This constituted the Department of the Interior, then, as now, the depository of governmental functions which could not be conveniently placed under the head of any other department. After its creation there was first added in 1855 the Government Hospital for the Insane, for the treatment of the insane of the army, the navy, and the District of Columbia, and in 1857 a supervisory authority was given to the department over the Columbia Institution for the Deaf, Dumb, and Blind, which in a modified sense still continues. As an incidental function during the same year, the Secretary was directed to construct a wagon road from Fort Kearny, Nebr., to the eastern boundary of the State of California, as well as several other roads in the Western States and Territories.

In 1862 a Returns Office was established in the department, in which should be filed all contracts executed on behalf of the War, Navy, and Interior departments. In 1867 the Department of Education was created, which by subsequent legislation became the Bureau of Education, attached to the Department of the Interior. Freedmen's Hospital in 1871 was placed under the control of the Secretary of War, but in 1874 the control of this institution was transferred to the Secretary of the Interior. In 1879 the Geological Survey was authorized as a bureau of the Interior Department, and in 1884 the Bureau of Labor was established in the department. By the act of March 1, 1873, the Department of the Interior was given jurisdiction over the Territories of the United States, including Alaska. Howard University was established by the act of March 2, 1867, and the Secretary of the Interior given supervision over congressional appropriations for this institution. Beginning with 1872 the Government undertook the establishment of national parks by the creation of the Yellowstone National Park, and placed its supervision under the Secretary of the Interior. All the national parks thereafter created on the public domain were placed under the jurisdiction of the Interior Department, including the Hot Springs Reservation in Arkansas. By virtue of the reclamation act of June 17, 1902, the Reclamation Service came into existence, to be administered by the Secretary of the Interior, and during the last session Congress established a Bureau of Mines in the department.

Various other duties of a miscellaneous kind have been imposed from time to time on the Secretary of the Interior; thus by section 1818 of the Revised Statutes he is required to prevent the improper appropriation or occupation of any of the public streets, avenues, squares, or reservations in the city of Washington, and by the act of March 3, 1875, together with the Secretary of the Treasury and the Postmaster-General, he is required to approve plans and estimates for public buildings throughout the United States. He was required to execute the policy of the Government in regard to certain of the Pacific railroads, to supervise the slave trade, and to execute the act in relation to the colonization of Liberia.

Various powers and duties have been from time to time transferred from the Secretary of the Interior, as follows:

The duties imposed upon the department relating to the suppression of the slave trade were rendered obsolete by the termination of the civil war. Jurisdiction over the accounts and expenditures of district attorneys, United States marshals, and other court officers was transferred to the Department of Justice. The appointment and removal of the warden of the jail of the District of Columbia were placed under the supreme court of the District, and appropriations for such officer and his employees are now supervised by the Department of Justice. The office of Commissioner of Public Buildings was abolished and the duties thereof devolved upon the Chief Engineer of the Army. On May 16, 1862, the Agricultural Division of the Patent Office was transferred to what was then authorized by Congress as the Department of Agriculture. The Bureau of Labor was transferred from the Department of the Interior and made an independent establishment under the name of the Department of Labor by the act of June 13, 1888, and the Census Office was transferred from the Department of the Interior to the Department of Commerce and Labor when that department was created. The supervision of the national forests was transferred to the Secretary of Agriculture in 1905.

At the present time the Interior Department embraces supervision over the following offices and institutions:

The General Land Office, Office of Indian Affairs, Pension Office, Patent Office, Geological Survey, Bureau of Education, Bureau of Mines, Reclamation Service, the Territories (exclusive of insular possessions), national parks, American antiquities, Government Hospital for the Insane, Freedmen's Hospital, Howard University, and Columbia Institution for the Deaf and Dumb. In the District of Columbia supervision over the office of the Superintendent of the United States Capitol Building and Grounds; protection from improper appropriation or occupation of the public streets, avenues, squares, and reservations in the city of Washington; the issuing of deeds to certain lots in that city; and other duties in connection with other activities in the District of Columbia and elsewhere.

WHAT SHOULD BE TAKEN AWAY OR RESTORED TO RENDER THE OPERATIONS OF THE INTERIOR DEPARTMENT MORE HOMOGENEOUS.

If, as originally intended, the Interior Department was to possess the bureaus and institutions relating to domestic affairs, it has lost that distinctive feature by the creation of two other departments which have taken over parts of its functions, viz, the Department of Agriculture and the Department of Commerce and Labor.

If I may venture the opinion, it would have been more logical to have consolidated the Interior Department and Department of Agriculture at the time of the creation of the Department of Commerce and Labor and transferred from them certain functions to the Department of Commerce and Labor and other departments, as, for instance, the Patent Office to the Department of Commerce and Labor; the Pension Office to the War and Navy Departments, where it was originally lodged. Under the existing system duplication of governmental effort necessarily arises in the exercise of the functions of departments with divided jurisdiction over the same subject-matter, as now exists in some measure between the Interior Department, the Department of Agriculture, and the Department of Commerce and Labor. This is well illustrated in connection with the jurisdiction of the Departments of Agriculture and of the Interior over forest reserves, and of the newly created Bureau of Mines in the Interior Department and the Bureau of Standards in the Department of Commerce and Labor. It would seem to be apparent that the supervision of the Capitol building and grounds should be transferred to the Treasury Department, under the Supervising Architect's Office; that the Returns Office should be attached to the Treasury Department; that the supervision of the Columbia Institution for the Deaf and Dumb and of the Maryland School for the Blind should be transferred to the District of Columbia; that all supervisory matters relating to the District of Columbia be transferred to the Commissioners of the District; and that the supervisory authority over the islands of Samoa and Guam be transferred to the Bureau of Insular Affairs.

BUILDINGS IN WASHINGTON OCCUPIED BY THE INTERIOR DEPARTMENT.

The government buildings under the jurisdiction of the Interior Department in Washington for the use of that department are the Patent Office building, the old Post-Office building, the Pension building, the Government Hospital for the Insane, Freedmen's Hospital, and buildings erected by the Government in connection with Howard University. Certain of the bureaus, such as the Geological Survey, the Reclamation Service, and the Bureau of Mines, occupy rented quarters, and the department also rents for the Civil Service Commission, through congressional direction, the building occupied by the commission. The rentals paid by the department for the fiscal year 1910 amounted to $55,900. (For the details of rentals for 1910 and other years, see Appendix A.)

It would be economy for the Government to build the necessary structures to care for all the bureaus which can not be accommodated in the three buildings of the Government, and the congested condition of the Patent Office and the Secretary's office makes some action in this direction necessary in the near future.

NEW METHODS AND ECONOMIES.

The department is pursuing careful methods of study into the subject of more economical methods of administration in public business in all of the branches of the service, both in Washington and in the field, and the estimates for appropriations as recommended to Congress have been reduced to the smallest amount believed to be consistent with safe and effective public service. As to certain institutions connected with the department, some recommendations for appropriations have been denied in the estimates for the reason that Congress has not thus far authorized a comprehensive scheme or policy of development—as, for instance, in connection with Howard University, Freedmen's Hospital, the national parks, and the Government Hospital for the Insane.

The committee and subcommittees recently appointed in this department at your instance in furtherance of the installation of more economical and businesslike methods of administration, while preparing to submit a full report of the results of their labor, are recommending from time to time changes in methods of procedure obviously in the interest of good service, and these recommendations, where the changes can be effected by order of the head of the department without change in existing law, are being put into effect immediately.

I not only have made an effort to become personally acquainted with field conditions in the various branches of the service, but, where possible, have sent various bureau officers to make business or inspection trips so as to familiarize them with field conditions. This policy has already produced suggestions for economy in administration, increased revenues in various directions, recommendations for the adoption or change of laws and regulations for the betterment of the service, and a more intelligent and efficient understanding of administrative problems.

APPROPRIATIONS AND REVENUES.

The annual appropriations of the department for the last five years are shown in Appendix B.

Certain of the bureaus, such as the General Land Office and the Patent Office, have produced revenues beyond their actual expenditures, as is shown in Appendix C.

EMPLOYEES.

The appropriations for the maintenance of the service of the department and of its buildings and grounds can be lessened only by a unification and simplification of business methods in the several bureaus and the establishment of a retirement fund for government employees. So long as a retirement fund is withheld, the practice of pensioning superannuated and defective, though deserving, clerks by retaining them on the salary rolls must continue. This necessarily results in many competent persons receiving inadequate salaries and a reluctance to reward the highest grade of service by compensatory remuneration.

A table showing distribution of force in various bureaus and number in field force by States and Territories is shown in Appendix D.

I am glad to be able to say that the work of the department shows that important progress was made during the past year in all branches of the service and in securing legislation in the public interest.

INCREASE IN VOLUME OF WORK.

It is hardly possible for the public to realize the volume of work handled by the various bureaus and agencies of this department and its constant increase.

Tables 1, 2, and 3 in Appendix E instance the increase in correspondence and other work of some of the bureaus.

PUBLIC LANDS.

The bureaus involved in the distribution of the public lands are the General Land Office, the Geological Survey, the Reclamation Service, and the Office of Indian Affairs. A certain amount of cooperation between them is necessary to accomplish the highest public service. This cooperation, I am glad to say, exists in a larger measure than ever before in the history of the department. The General Land Office is the clearing house for the disposition of all the public lands and has to deal with their location, settlement, survey, entry, and patenting; the Geological Survey with their classification, topographical survey, and investigation of their mineral and water resources; the Reclamation Service with the irrigation of arid lands; and the Office of Indian Affairs with the supervision and allotment of Indian lands.

PUBLIC DOMAIN: HOW CREATED.

Upon the organization of the Government it became the proprietor of the public domain, as the successor to the Confederation, under deeds of cession from the States of New York, Virginia, Massachusetts, Connecticut, and South Carolina. By direct cession from North Carolina and Georgia it became vested with additional territory. As a nation the United States thus became the sole custodian, with the right of sale or other disposition, of all such territory as in the judgment of Congress shall be deemed best, it being understood "to be a common estate, to be granted out on terms beneficial to the United States," for the liquidation of the debt created by the Revolution.

These cessions to the Federal Government embraced approximately 259,000,000 acres.

Of purchases, the first was from France, in 1803, known as the "Louisiana Purchase," at a cost of $27,000,000, and comprising an area of about 561,000,000 acres. The Florida purchase of 42,000,000 acres, at a cost of about $6,500,000, was made in 1819. The Oregon country, aggregating 181,000,000 acres, was acquired by discovery (in 1792) and treaty with Spain (in 1819) and occupation. The Mexican acquisition, by treaty of Guadalupe-Hidalgo of 1848, contained an area of 329,000,000 acres and cost $15,000,000. The Texas purchase of 1850 contained an area of 64,000,000 acres and cost $16,000,000. The "Gadsden Purchase" of 1853 embraced an area of 29,000,000 acres, at a cost of $10,000,000, and, lastly, the Alaska purchase of 1867 had an area of 370,000,000 acres, at a cost of $7,000,000, the total area of all these purchases being 1,576,000,000 acres, costing the Government in purchase money over $88,000,000. Including the original cessions, the area covered into the public domain has amounted, in round numbers, to 1,835,000,000 acres.

The area of unappropriated and unreserved public lands is shown, by States and Territories, in the following table:

Area of public domain unappropriated and unreserved, by States and Territories.

	Acres.
Alabama	108, 210
Alaska	368, 014, 735
Arizona	41, 491, 369
Arkansas	512, 705
California	24, 864, 884
Colorado	21, 726, 192
Florida	453, 009
Idaho	24, 743, 804
Kansas	137, 180
Louisiana	88, 911
Michigan	107, 890
Minnesota	1, 563, 302
Mississippi	47, 058
Missouri	2, 510
Montana	36, 015, 943
Nebraska	1, 879, 486
Nevada	56, 474, 688
New Mexico	36, 454, 692
North Dakota	1, 410, 225
Oklahoma	5, 007
Oregon	17, 580, 573
South Dakota	4, 562, 804
Utah	35, 955, 554
Washington	3, 196, 059
Wisconsin	14, 460
Wyoming	34, 575, 159
Total	711, 986, 409

NATIONAL POLICY: HOW MANIFEST.

The national policy regarding the public domain has been uniformly exercised in the disposition of public lands, as follows:

(1) In reserving out of the public domain such parcels of public lands as may be necessary for the common defense or the general welfare; or, in other words, such as are required to be appropriated for national uses, immediate and expectant. Under this policy Congress has established military and naval reserves, Indian reservations, national parks, light-house reserves, forest reserves, national monuments, etc., which altogether embrace approximately 300,000,000 acres of the public lands.

(2) By granting public lands in aid of national improvements and works, such as highways, and the promotion of educational and charitable purposes. See Appendix F.

(3) By grants for bounties to soldiers and sailors in recognition of services in defense of the Government and donations in satisfaction of other special services which equity or merit would commend.

(4) In selling or otherwise disposing of the remainder to private citizens, under such regulations as Congress finds necessary for securing title to bona fide settlers or purchasers.

In brief, the methods of disposal have almost uniformly been by reservation, grant, donation, or sale. Under the three latter methods the grantees have been invested with the fee-simple title. It is true, however, that lead mines were leased for a brief period under authority of Congress. Congress has never authorized a qualified title, except by way of easements for rights of way, probably on the theory that the "primary disposal" meant the absolute disposal as viewed by the earlier ordinances of Congress.

THE HOMESTEAD POLICY.

The homestead bill for granting free homes to the landless settler became a national question in 1852, and ten years later it was written into law and approved by Abraham Lincoln, after a previous veto by President Buchanan in 1860 on the ground that Congress did not have the power to make a donation of public lands to settlers or to the States. Here was inaugurated a radical change of policy. For eighty years the public lands had been treated as a direct national asset for the purpose of acquiring revenue; thenceforth they were to be granted to actual settlers who would occupy, improve, and cultivate them for a term of years, and then receive a patent free of acreage charge, with fees paid sufficient to cover cost of survey and transfer of title. Of this policy, President Johnson, in his annual message in 1865, said: "The homestead policy was established only after long and earnest resistance. Experience proves its wisdom. The lands in the hands of the industrious settlers, whose labor creates wealth and contributes to the public resources, are worth more to the United States than if they had been reserved as a solitude for future purchasers."

THE MINERAL LAND POLICY.

For nearly forty years the statutes have declared that all valuable mineral deposits in lands belonging to the United States, both surveyed and unsurveyed, are to be free and open to exploration and purchase, and the lands in which they are found to occupation and purchase by citizens of the United States and those who have declared their intention to become such. Rich deposits of precious metals in the Pacific States and Territories have been discovered and located under these general mining laws and have been operated for many years. Granting defects in the laws, they have accomplished their purpose in causing the mineral resources to be developed and have thus contributed enormously to the wealth of the nation. It is hardly reasonable to believe that any material change will be made in these laws or in the method of disposal of the lode and placer claims of the mineral regions. Here, as in the settlement laws, the Government's liberality has had its reward in the material prosperity of the people, and while abuses have existed, they can not be charged so much to the law as to evasions of the law.

GENERAL OBSERVATIONS AS TO USE OF PUBLIC LANDS.

Heretofore, as will be seen, it has been the policy of Congress to dispose of the public lands to those who would make the best use of them; none were disposed of with a view to securing revenue for governmental support. Even the coal lands were sold at nominal figures, and until a few years ago they were not entered even at that figure, except where market facilities made the land salable for their product.

Under more conservative theories the question now is of saving the remnant of the public lands from monopolization or misuse without abandoning the old policies of encouraging development. The highest productive use of these lands is the concern of the people. The methods of securing this use are the concern of the national and state governments.

By the Constitution Congress is made the steward of the public domain and for its stewardship it is responsible to the people. In selling or otherwise disposing of this national estate the executive can move only as directed or authorized by Congress; therefore all questions relating to a change from the existing status or to policy over this estate reside alone in the legislative branch of the Government, and all popular movements looking to the reformation of our land system must of course be addressed to Congress. Consequently the movement to conserve the national resources in this national estate of lands—that is, to secure the wisest and most lasting benefit to the nation in their use—is a matter with which Congress must deal.

LEGISLATIVE AND ADMINISTRATIVE PROGRESS—RECOMMENDATIONS.

A portion of my last annual report was devoted to suggestions for new legislation or modifications of existing law to secure the best use of the public lands, reservations, and national resources. The legislation on these subjects during the last session of Congress was, briefly, as follows:

(1) Law authorizing the temporary withdrawal of public lands for water-power sites, irrigation, classification, or other public purposes.

(2) Law authorizing issuance of $20,000,000 in certificates for completion of existing reclamation projects.

(3) Law separating the right to mine coal from the title to the surface of public lands and opening the surface to entry under agricultural laws.

(4) Law providing for the compulsory survey of lands in railroad grants and reimbursement to the Government for the surveys.

(5) Law authorizing the Secretary of the Interior to withhold from entry lands in reclamation projects until farm units have been established and water is ready for irrigation.

(6) Law authorizing assignment of homestead entries in reclamation projects after five years' residence, cultivation, and improvement.

(7) Amendment to the Carey Act, permitting temporary withdrawal of lands susceptible of reclamation pending examination of the lands and the preparation and filing of map and plan of irrigation by the States.

(8) Law authorizing the Interior Department to dispose of the mature living and dead and down timber on Indian reservations.

(9) Law appropriating for and authorizing survey of agricultural lands in the District of Alaska.

From the work of the department during the past year may be determined the advancement made in the disposition of public lands under the various acts of Congress and of its activities in protecting them from illegal acquisition, also the progress made in classifying and segregating the public lands to enable Congress to apply new methods of control in the disposal of lands that demand restrictive methods of alienation or use.

Increased appropriation for the field service of the General Land Office, expiring June 30, 1910, enabled that bureau measurably to clean up the vast number of cases in arrears pending under fraud charges. The appropriation for field work has been reduced a quarter of a million dollars for the current year, but with the activity of the force as now constituted the work of investigation of land cases will be kept up with an equal or greater degree of efficiency.

On June 30, 1909, there were on hand 35,036 cases for investigation. During the year ended June 30, 1910, there were received 37,811 cases, 46,153 cases were investigated, and 43,554 cases were closed. Four hundred and sixty-six civil and criminal convictions were found; $227,211.79 was tendered for settlement of trespasses on the public domain; $114,653.05 was actually paid in as the result of civil and criminal actions. As the result of investigations, 4,665 entries were canceled; 12,065 acres were restored through proceedings for the removal of unlawful inclosures.

The area of public and Indian lands included in original entries and filings during the fiscal year 1910 amounted to 26,391,269.09 acres, an increase of 6,498,765.33 acres over the area entered during the year 1909.

The area patented during the fiscal year 1910 amounted to 10,983,150.12 acres, of which 7,404,598 acres were disposed of under the homestead laws.

The total cash receipts from the sales of public lands, including fees and commissions, were $8,371,637.10; from the sales of Indian lands, $2,037,551.68; reclamation water-right charges, $770,586.35; depredations on public lands, sales of government property, and copies of records, $284,148.93, making the total cash receipts from all sources in connection with the public lands $11,463,924.06, a decrease of $752,491.33 from the fiscal year 1909.

The excess of receipts over all expenditures and estimated liabilities of the public-land service is $8,284,560.57.

There has been an increase over previous years in area of lands entered, but a decrease in the acreage patented, although patents issued have exceeded in number those issued during the preceding year, showing a wider distribution of the lands patented.

For the survey of the public lands, Congress at the last session increased the appropriations over former years, and authorized the abandonment of the old " contract method " of surveys. The reports thus far received from the department's surveying forces in the field indicate that the surveys are being made under the new system at a reduced cost per acre, and at a very great increase of speed. Surveys that have had heretofore to await years of examination will now be adjusted and approved, on receipt of data from government surveyors, without delay.

In view of the conflict between water-power withdrawals and applications for rights of way for purposes of irrigation, as well as the development of power, the department is granting, after field investigation, rights of way for irrigation where the value of the site is found to be higher for the reclamation of arid lands than for the development of commercial power. There have been also granted, after field investigation, some revocable permits under the act of 1901 in cases where the claims had been initiated prior to withdrawal and appeared not to conflict with the public interest. All applications of both classes, however, have been granted under stipulations designed to limit and control the use. The system of granting revocable permits under the act of 1901 is unsatisfactory both to the Government and the applicant and tends to discourage investment and the healthful development of such projects, especially in cases where large capital is necessary for the construction of plants and works.

The passage of the act allowing surface entries on lands classified as coal lands has been a relief against the tension created by keeping the enormous area of over 80,000,000 acres from settlement. These lands are now open to agricultural entry with authority to issue patents on full compliance with law, except that the patentee secures no right in or to the deposits of coal that may be found in the lands.

Great activity has existed in connection with the lands opened under the enlarged homestead act of 1909 allowing entry of 320 acres. There have been classified and opened for entry under this act approximately 188,000,000 acres, and from time to time further classifications will be made and the lands so classified opened to settlement. (For tables showing designation by States under the enlarged homestead act opened to settlement, see Appendix G.)

The existing withdrawals of coal, oil, phosphate, and water-power lands aggregate at this time in round numbers over 91,000,000 acres. (For tables showing the acreage of the various withdrawals by States, see Appendix H.)

A failure to release much of the lands now under withdrawals by new and amendatory acts directing the manner of their disposition will inhibit development and greatly retard the new and struggling settlements and industries of many of the Western States and Territories.

All the coal lands in Alaska not located prior to November 12, 1906, are under the bond of withdrawals. Those located prior to said date are for the most part under departmental investigation on charges of fraud or irregularities, etc. These investigations have been taken up under a corps of trained officers with the view of securing the exact status of all such locations and entries. In the meantime no patents have issued and none will be issued except upon a full showing of compliance with law and departmental regulations. A class of entries, known as the "Cunningham entries," made in 1907, have provoked wide discussion and popular interest, largely because of their alleged value and method of attempted acquisition.

In view of such conditions I deem it of the highest importance that all these cases, involving 33 entries, or 5,280 acres, of coal lands, be transferred from the jurisdiction of the General Land Office directly to the court of appeals of the District of Columbia for consideration and adjudication, without the necessity of a ruling as to the validity or invalidity of these entries by the Commissioner of the General Land Office as is now required in such cases. This procedure may well be provided by special direction in the bill now pending in Congress for the authorization of appeals in land cases from the Interior Department to that court. I will have occasion to discuss further the importance of providing a method of appeal to the courts from decisions of the department in land cases.

Reverting to the condition of the public-land laws in Alaska, even the most cursory examination of them, in view of local conditions of climate, of isolation, except as to ocean transportation, and of the vast extent and lack of homogeneity of the Territory, satisfies all practical men that they are crude and unsuited to the best interests of the Government. On the other hand, experiments at amendment have placed the ban on development so that progress is at a deadlock. Without domestic coal in Alaska railroad construction and operation is prohibitive, and without both only the roughest pioneer development is possible.

In addition to the necessity of opening up and developing coal deposits in Alaska for railroad operation, it is equally important that coal should be available for mining operations, for the navy, and for trans-Pacific commerce.

The governor of Alaska in his annual report makes the following observations respecting the inconsistent attitude of the Government in withholding the development of the coal deposits in Alaska:

> In the interest of general conservation of coal, Alaska coal should be mined and used. For every 5 tons of eastern coal which is brought around Cape Horn to the Pacific coast, approximately 1 ton is burned to make steam for its transportation. To withhold the Alaska coal, therefore, is not conservation, but waste. Moreover the Atlantic seaboard coal should be kept there as far as possible, where it is needed and where it will be needed still more in the future, in the centers of population. The Pacific coast annually uses perhaps 1,000,000 tons of manufactured iron, the transportation of which from the Eastern States consumes a large quantity of coal. This is not conservation; it is waste. Alaska has an abundance of coking coal which, if available, could be used for the manufacture of Pacific coast iron ores, thus not only avoiding the waste of coal now caused by the transportation of eastern manufactured iron, but building up a new industry on the Pacific.

NEW OR AMENDATORY LEGISLATION.

New or amendatory legislation respecting our public lands should be direct, simple, effective, and relate principally to the proper form of disposition of the withdrawn lands—water-power sites, oil lands, coal lands, and rights of way over public lands.

As has been shown, the unappropriated public lands of the public-land States and Territories amount to about 712,000,000 acres, and, as compared with the private lands in these various States, are a small percentage of the territory thereof. The Federal Government should not undertake or assume the entire burden of the conservation of the natural resources of the States in which these lands are situated, for it has been demonstrated that the States are capable of taking care of these questions in a large measure, as is shown by the legislation effectuating these purposes in States like Massachusetts and Washington, at the extremities of our country.

COAL LANDS.

Respecting the disposition of coal in the public lands I call attention to what was said on this subject in my last annual report, to the effect that new legislation was desirable and that the most advantageous method of disposal of coal deposits will be found in a measure authorizing the lease or sale thereof subject to forfeiture for failure to exercise the rights granted, with restrictions on mining operations in order to conserve the deposit as a public utility. In my annual report as Commissioner of the General Land Office in 1907 I gave the reasons which impelled me to believe that the best interests of the Government will be subserved by a sale rather than a lease of the deposits. I also set forth in an official statement some of the difficulties which I thought would be encountered by the Government in the operation of a leasing system, as follows:

> First. Under a sale of a deposit an owner would not need that supervision that a lessee would necessarily be under in the matter of protecting the mine as against wasteful and ruinous operation. In operation it will be found that a lessee will naturally have an incentive to produce as much coal, with as little expenditure in honest development, as possible, resulting in many cases of robbing the mine—that is, leaving insufficient timbering, pillars, air shafts, etc., to maintain its permanency while the coal of this or overlying seams is being removed; and the high grade or more valuable coals will often be worked out and the low grades left in the mine, resulting in a total loss thereof to the public. Furthermore, upon the termination of a lease or other abandonment, government maintenance will be necessary in many cases which would not occur under the sale system. Government maintenance would mean retimbering and a continuance of physical improvements to prevent decay and loss of the deposit from fire, cave-ins, flooding, etc. It is true that in case of forfeiture under the sale of the deposits similar maintenance would be necessary except upon a resale; but the cases in which forfeiture would occur under the sale system would be small compared with the abandonments or forfeitures under the leasing system.
>
> Second. The collection of rentals, royalties, or tolls, as the case may be, under a leasing system will necessarily involve the maintenance of a numerous

body of government employees at a great expense to the Government, and add further expense for a detailed system of accounting. This increased expense involved in the leasing of coal deposits will, of necessity, increase the price of coal to the consumer and will also be a constant menace in administration as likely to produce in many instances public scandal if not corrupt practices. These objectionable features would appear to me to be practically removed under a sale of the deposits.

Third. Regulations, under the leasing system, will be likely to trench upon the police power of the States as to mine inspection, supervision, and regulation, where, under the sale system, there could be little or no conflict.

Fourth. In the operation of a coal mine under a lease from the Federal Government the lease would necessarily have to be so worded as to protect the Government against liability for negligence on the part of the operator, resulting from loss of life or destruction of property. In case the Government's agents were likewise grossly negligent in enforcing the regulations a grave question is presented, whether or not the Government is not at least morally liable.

I consider it highly important that Congress take action in giving the department an effective method of disposition of coal lands and deposits, especially in Alaska. The question of whether it should be by a sale of the deposit, or through a leasing method, is one to be determined by Congress. In Alaska it is possible that a leasing system could be adapted to the country with great efficiency and with less complication than in the States. Under the present coal-land laws, the appraisement, as fixed by the department, is at a price estimated on the basis of a reasonable royalty, except in Alaska, where the price by law is fixed at a flat acreage rate, and in the States the administrative policy is to secure by sale what would accrue to the Government if the deposits were mined on a royalty basis.

OIL LANDS.

By the act of Congress approved February 11, 1897 (29 Stat., 526), public lands containing petroleum or other mineral oils were declared to be placers and were opened to location and entry under the general placer-mining laws. The placer act has proved wholly inadequate in its application to petroleum and oil lands. Under the general placer law no valid claim can be located without discovery of mineral. Mineral is usually discovered on the surface of the ordinary placer ground without much expense or time. This is not so with oil. It takes from six months to a year or more to test oil lands and make an actual discovery. The initial expense of the discovery ranges from $20,000 to $100,000, and in many instances more than this. A paper location of prospective oil lands made prior to discovery is not always respected by other oil prospectors. One prospector erects his derricks and proceeds with work upon his claim; another prospector will erect his derricks upon the same claim and proceeds with his work also. It is then a contest between the two for the first discovery. The law should be amended so as to protect the first bona fide locator and to give him a reasonable time to make his discovery.

The withdrawal act of June 25, 1910, contains this proviso:

> *Provided*, That the rights of any person who, at the date of any order of withdrawal heretofore or hereafter made, is a bona fide occupant or claimant of oil or gas bearing lands, and who at such date is in diligent prosecution of work leading to discovery of oil or gas, shall not be affected or impaired by such order, so long as such occupant or claimant shall continue in diligent prosecution of said work—

and is a suggestion of the legislation that ought to be enacted. I recommend that Congress be asked to pass a law recognizing the right of the prior bona fide locator to the exclusive possession of his claim for a reasonable time for prosecution of his work for the discovery of oil, and upon discovery a right to secure patent. This recommendation applies only to those locators who are bona fide occupants or claimants and who are in diligent prosecution of work leading to discovery of oil or gas at the time of any withdrawal of the land under executive direction.

The withdrawals now outstanding, including some private lands within the exterior limits, aggregate 4,500,000 acres, and are comprised within the States and Territories of Arizona, California, Colorado, Louisiana, New Mexico, Oregon, Idaho, and Wyoming, as is more particularly shown in Table 2 of Appendix H.

I am in favor of a general leasing system of oil and gas bearing lands, such a system as will promote legitimate development of this industry, prevent monopoly, and conserve one of the great natural resources of the country. The oil land of the Five Civilized Tribes in Oklahoma is developed on the leasing system, the term of the lease extending as long as oil is found in commercial quantities. The lessee usually pays to the Government for the use of the Indian one-eighth in value of the oil produced as royalty. This system has worked out very satisfactorily and is in use in many of the oil regions of the country where land is held in private ownership and not by the Government. I would apply the leasing system only to areas withdrawn for classification or classified by the Geological Survey. The unknown and unexplored oil lands I would leave open to exploration and location as I have suggested above. This would give a reward to the diligent prospector. Even then the surrounding lands could be withdrawn from further location after the diligent prospector had secured his first claims.

Speaking with special reference to California and the oil situation there, I have had the question investigated very carefully and find that quite extensive oil fields have recently been developed in that

State; that the price of coal for fuel there is enormous, ranging from $11 to $15 per ton for bituminous coal, and much more for anthracite. Much of the coal consumed in California comes from foreign countries—Australia and British Columbia. The New Mexico, Utah, and Wyoming bituminous coals cost the California consumer about the same price as foreign coal. Crude oil is piped from the California oil fields to the bay cities and sold at the present time at 85 cents per barrel. Three barrels of crude oil at the total price of $2.55 is substantially equivalent in fuel value to 1 ton of bituminous coal costing from $11 to $15. The use of oil for domestic consumption will reduce the price of fuel to the small consumer several times. I have had the Patent Office records examined and find that many patents have been issued for stoves which may be successfully used for the consumption of crude oil for family use. The reason, I am told, why crude oil has not been used extensively for family use in California is because of the heretofore uncertain production of crude oil in that State. The railroads and steamship companies are using it with satisfactory results. I recommend that the Government adopt a liberal policy in opening the oil lands in California. The Government ought to support any movement which would reduce the enormous cost of fuel in California. The State ought to be asked to cooperate with the Government to prevent the monopoly of the oil business and to effectually secure a reasonable price to the consumer. In my judgment this can be accomplished if the State of California should declare the consumption of oil a public use. The State should pass a law to this effect and place the regulation of the price of crude oil in the hands of a discreet commission. The recent decision of the Supreme Court of the United States in the case of Willcox *v.* Consolidated Gas Company (212 U. S., 19) seems to sustain this position.

WATER-POWER SITES.

There are now withdrawn from disposition, pending legislation concerning water-power sites, approximately 1,450,000 acres of the public domain.

In the various public-land States and Territories containing water-power resources in so far as there is present market for those powers the title to areas greater in extent than that remaining in the Government has long since passed into private ownership, and it must be realized that any radical or burdensome restriction imposed by the Federal Government upon this resource will operate as a servitude on the public lands and discourage their development and use. In my last annual report, in order to meet the emergency for a special method of administering this character of the public lands, and in order to retain the ultimate control thereof in the public, it was recommended that supervision be exercised through a leasing system. During the last session of Congress a bill was introduced—

> authorizing the President to withdraw from all forms of settlement, entry, or other disposition any lands which are or may become chiefly valuable for the development of water power, and providing for the acquisition of any State or Territory, under certain conditions, of any lands so withdrawn, and for other purposes.

The object of this bill is to transfer these sites to the States under limitations which would compel the States to retain title thereto and to secure and supervise their hydro-electrical development in behalf of the public. The bill provides for federal enforcement of compliance by the States with the terms, conditions, and limitations of the grant by stipulating for a reversion of the lands to the Federal Government upon the failure by the States to comply therewith.

Taking into consideration the fact that the States own the waters in the streams and have police power to supervise and control public utilities, it would seem a direct and effective method of control would be accomplished by conveying the power sites in trust to the States in some such manner as proposed by this bill.

I earnestly advise the adoption of some legislation which will in any even retain the fee title to the lands in the people and effectually vest the power of regulation and control in the State or in the Federal Government, and which will not result in limiting prompt and economical development or permit monopolization or extortion.

MISCELLANEOUS RECOMMENDATIONS RELATING TO PUBLIC LANDS.

Other recommendations for amendments to existing laws or for enactment of new laws are as follows:

Amendment of existing desert-land laws so as to limit the maximum of area which may be entered to 160 acres; to extend the time within which final proof may be made to seven years, but impose the additional condition of actual cultivation of not less than one-half the irrigable area of the entry for a period of not less than three years prior to final proof.

Repeal of the commutation provisions of the homestead law, or, if this be deemed inadvisable, modification of the present laws so as to require two years' actual residence, cultivation, and improvement as a prerequisite to commutation. Also provide that no patent shall issue under any commuted homestead entry hereafter made, except to citizens of the United States.

Legislation requiring notices of mining locations to be recorded in the office of the register and receiver of the land districts; requiring final payment and entry for mineral claims to be made within seven years from date of location, exclusive of any time covered by pending adverse or contest proceedings, and modifications of the placer mineral laws so as to provide that no placer location hereafter made, whether by one or more persons, or an association of persons, shall exceed 40 acres in area.

Under the provisions of the act approved March 3, 1875, railroads that have filed proof of organization may acquire a right of way over the public lands by construction without first filing and obtaining approval of an application for right of way.

The act of March 3, 1899, requires that where rights of way are sought across forest reservations or reservoir sites, permission must first be obtained and construction allowed only when the public interests will not be injuriously affected thereby. Under this provision of law ample power exists for protecting the interests of the public within reservations, but no sufficient power as to the public lands.

I accordingly recommend that the act of March 3, 1875, be amended so as to specifically provide that no railroad construction work shall be permitted upon the public lands, either surveyed or unsurveyed, until application therefor shall have been approved by the Secretary of the Interior; that he be authorized to disapprove the application or to require appropriate stipulations as a condition precedent to the approval of the application when in his judgment the public interests so require.

Hunting, killing, or destroying game at any season of the year in any national park, national monument, or game preserve should be made a criminal offense; police jurisdiction in national parks should be conferred on United States commissioners; and section 53 of the penal code of the United States (35 Stat. L., 1908, and 36 Stat. L., 856) should be amended so as to insert therein after the words "public domain" the words, "national parks, national monuments, and other reservations." This legislation is necessary in order to protect these reservations from forest fires and to provide a penalty for failing to extinguish fires therein.

The destructive forest fires which swept over large areas of the Western States during the past summer have killed or injured timber on approximately 200,000 acres of unreserved public lands. This fire-killed timber if left standing will rapidly decay and in a short time be unmarketable. I therefore recommend that a law be enacted giving the Secretary of the Interior authority to dispose of such timber on the public lands as has been killed by fire prior to November 1, 1910, to the highest bidder at public auction or through sealed bids, the proceeds to be covered into the Treasury as are other receipts from public lands.

APPEALS TO COURTS IN LAND CASES.

The Interior Department, in the administration of the public-land laws, is constantly confronted with grave legal questions and the decision of cases involving property rights and interests of great magnitude. No appeal to the courts from such decisions of the department is authorized, although in the Patent Office for some time legislative authority has authorized appeals from the decisions of the commissioner to the court of appeals of the District of Columbia.

On June 20 last I addressed a communication to you recommending legislation of this character and on June 21 the following special message was sent to Congress:

> *To the Senate and House of Representatives:*
>
> There are, perhaps, no questions in which the public has more acute interest than those relating to the disposition of the public domain. I am just in receipt from the Secretary of the Interior of recommendation that in disposition of important legal questions, which he is called upon to decide relating to the public lands, an appeal be authorized from his decision to the court of appeals for the District of Columbia.
>
> I fully indorse the views of the Secretary in this particular, which are set forth in his letter, transmitted herewith, and urge upon the Congress an early consideration of the subject.
>
> WM. H. TAFT.

As a result there is now pending in Congress House bill No. 27071, which, if passed, will authorize an appeal from the final decision of the Department of the Interior in land cases to the court of appeals of the District of Columbia. I earnestly recommend the early enactment of this bill into law.

Appeals to the court in such cases are desirable in order to establish a fixed line or body of authoritative judicial decisions interpreting the statutory law upon which the disposition of the public lands rests, and also to remove the criticism that department officers act in the dual capacity of administrative and judicial officers.

The reasons which make it advantageous to secure authority for appeals to the court in land cases would apply with equal propriety to appeals from decisions of the department relating to the disposition of cases affecting Indian lands arising in the Office of Indian Affairs.

In order to simplify and expedite the work of the department in handling public-land cases the old practice of permitting numerous reviews and rereviews of the decisions of the Commissioner of the General Land Office and of the Secretary of the Interior has been abolished by amended rules of practice, requiring that the decision of the Commissioner shall be final and appealable direct to the Secretary, and that there shall be granted to the appellant or appellee before the Secretary a motion for review, but no right of re-review, which modifications are with the aim of simplifying the procedure and making it more sure that the rights of the honest, yet impecunious entryman, may be protected. In the event of the authorization by law of an appeal to the court, as above mentioned, the review of the Secretary's decision may well be abolished without any injustice to litigants.

OFFICE OF ASSISTANT ATTORNEY-GENERAL.

The following table in a general way indicates the character and classification of the work disposed of by the Assistant Attorney-General and the attorneys in his office during the past year. Comparison with the corresponding table embraced in the report for the year 1909 shows a great increase in the business of the office, notwithstanding which, however, the work is practically up to date.

Work of office of Assistant Attorney-General.

	Appeals.	Reviews.	Opinions.	Indian.	Disbarment proceedings.	Miscellaneous.
Pending October 1, 1909	244	36	2	50	1	47
Received October 1, 1909, to October 1 1910	2,839	841	125	8,668	22	1,524
Total	3,083	877	127	8,718	23	1,571
Disposed of October 1, 1909, to October 1, 1910	2,930	838	125	8,673	20	1,498
Pending October 1, 1910	153	39	2	45	3	73

In addition to the above the number of mandamus and injunction proceedings brought against the Secretary of the Interior and the heads of the several bureaus of this department in the supreme court of the District of Columbia has increased, with, of course, a corresponding addition to the labors of the office in defending the same. These proceedings usually consist in attempts, almost invariably abortive, to secure judicial review of departmental action, and would be entirely avoided by a system of appeal to the courts from the department's decisions.

GEOLOGICAL SURVEY.

The appropriations for carrying on the work of the survey for the fiscal year ended June 30, 1910, aggregated $1,497,815. While a larger amount could have been used in carrying out the varied investigations and researches, important results have been accomplished and much of the work, especially the land classification, has been, from the Government's standpoint, distinctly productive. The classification of the public lands has reached a degree of practical use in the administration of the public domain believed never before to have been attained and is of material advantage to the department in the control and disposition of the public lands, bringing with respect to coal lands a material increase in revenue per acre to the Government. The researches of the Geological Survey have also been of especial importance in connection with the location and reservation of water-power sites on the public lands. In these classifications and investigations the data at hand in the geologic, topographic, technologic, and water-resources branches have been employed in connection with progressive field examinations.

Geologic surveys and investigations were continued during the year in 32 States and Territories, and included examination of coal territory in the Rocky Mountain region, the study of the phosphate deposits in Idaho, Wyoming, and Utah, the oil fields in southern California and Oklahoma, and of important mining districts in Arizona, California, Colorado, Idaho, Missouri, Nevada, Utah, and Washington.

Topographic surveys were made in 34 States and Territories and covered 32,808 square miles. The total area in the United States topographically surveyed to date is 1,107,765 square miles, or 35.5 per cent of the entire country. The requests submitted throughout the country for topographic surveys are far in excess of possible accomplishment under the present appropriation.

Data for the annual report on the mineral resources of the United States are being procured through cooperation with the Bureau of the Census, and an effort is being made to embody therein the fullest available information regarding the occurrence, development, and utilization of the mineral products of the country.

Investigation of the country's water resources has been carried on during the past year through 878 gauging stations, some of which are maintained in cooperation with the States, municipal organizations, and private persons.

Technologic work was carried on during the year in the investigation of mine accidents, field investigations, and investigations of structural material. Four branch mine rescue experiment stations were established during the year and nine others have been authorized by Congress. Many mining companies have followed the example of the Government and purchased rescue equipment for establishing local stations of their own. On July 1, 1910, the personnel and equipment of the fuel and mine accidents divisions of the technologic branch of the survey were transferred to the new Bureau of Mines, and at the same time the personnel and equipment of the structural-materials division were transferred to the Bureau of Standards of the Department of Commerce and Labor.

For further and detailed information with respect to the operations of the survey, reference is made to the report of the director.

BUREAU OF MINES.

In an act approved May 16, 1910, which became operative the 1st day of July following, Congress established under the Department of the Interior a National Bureau of Mines. The widespread demand for the creation of this bureau had been developing among the varied mining interests for a number of years, in recognition of the increasing importance of mining as one of the foundation industries of the country; but its establishment was hastened by a succession of serious mine disasters during the past few years and by a growing realization of the extent to which the mineral resources of the country were being wasted in both the mining and metallurgical branches of the industry.

The main purpose of the new bureau is to aid in lessening this loss of life and waste of resources in the operations of the mining industry, or as expressed in the language of the statute:

> To make diligent investigations of the methods of mining, especially in relation to the safety of miners, and the appliances best adapted to preventing accidents, the possible improvement of conditions under which mining operations are carried on, the treatment of ores and other mineral substances, the use of explosives and electricity, the prevention of accidents, and other inquiries and technologic investigations pertinent to said industries, and from time to time to make public reports of the work, investigations, and information obtained as the secretary of said department may direct, with the recommendations of such bureau.

The extent of the work of the new bureau and the rate at which it can carry out its purposes and thereby meet the growing demand of the public will depend upon the further action of Congress in supplying the necessary funds. Fortunately, the proper development of its work does not need to await a new organization and a new establishment for the reason that Congress, in the act creating the bureau, transferred to it the experienced personnel, including a considerable number of engineers and chemists, and the extensive equipment brought together and employed under the Geological Survey in the development of investigations similar to those now being conducted by the Bureau of Mines. The present organization, therefore, will serve as a nucleus in beginning the more extensive work to be hereafter developed.

As a guaranty of the efficiency of this work, attention may be called to the fact that the engineers and chemists mentioned, during their connection with the technologic work of the Survey, conducted their tests of materials for the use of the Government in a manner satisfactory to both the sellers and the purchasing representatives of the Government and at costs lower than those estimated for such work by private parties.

Furthermore, their investigations and the accompanying educational work during the past two years have already aided materially in reducing the loss of life in the American coal mines.

The Bureau of Mines will continue to conduct the investigation of the fuels belonging to or for the use of the Government, and these purchases now approximate $10,000,000 yearly; but its largest and most urgent work for some time will be that connected with the investigation of mine accidents and the methods of preventing them.

In connection with this work the bureau will use the extensive mine-investigation laboratories at the Pittsburg experiment station. It will also use, in connection with its investigational and educational work, a number of mine-rescue stations and mine-rescue cars, one in each of the more important coal fields, which will be fully equipped for both investigations and demonstrations of methods for preventing accidents, and for rescue work in case of accidents.

As to the relations of the Bureau of Mines to the work of the States and private corporations, it may be expected that the bureau will take no part in mine supervision or in mine inspection, these being within the province of the State. But the bureau will do what it can to encourage the investigation of local mining problems by the States and the private corporations most directly interested. Furthermore, the bureau will not undertake to do or to supplant the professional work which is now being done, or is to be done, by private mining engineers. Its main work will be that of conducting such investigations and inquiries as relate to the more general or national phases of the mining and metallurgical branches of the industry, and the distribution of the results of its investigations and inquiries among the mine workers and mine operators of the country in such manner as will be most effective in accomplishing the purposes for which the bureau was created.

A brief statement of the work relating to mine accidents and investigations carried on by the Government prior to the organization of the bureau is given on page 26; a more detailed account may be found in the annual report of the Director of the Geological Survey.

RECLAMATION OF ARID PUBLIC LANDS.

OPERATIONS UNDER THE UNITED STATES RECLAMATION ACT.

The act of Congress approved June 17, 1902, known as the "reclamation act," set apart as a fund for the reclamation of arid lands all moneys received from the sale of public lands in certain of the Western States and Territories, excepting the 5 per cent of the proceeds of such sales set aside by law for educational and other purposes. The actual receipts from this source to June 30, 1909, were $58,439,408.93, and the estimated total receipts to June 30, 1910, are $65,714,179.06. The net investment of this fund in reclamation works on June 30, 1910, amounted to $53,781,302.88.

The act requires the Secretary of the Interior to determine and return to the reclamation fund the estimated cost of construction, and entrymen and private landowners receiving water from reclamation projects are therefore required to contribute their proportion of the cost of construction, operation, and maintenance of the project wherein their lands are situated. The cash receipts from this source to June 30, 1910, were:

Cash returns to reclamation fund.

Water-right building charges	$902,822.25
Water-right operation and maintenance charges	249,637.19
Total	1,152,459.44

In addition, amendatory acts authorizing sales of town lots, sales of water to towns and cities, leases of power developed in projects, etc., have produced an additional revenue of $2,086,107.73, which, under the law in question, is credited as a reduction of the cost of the projects from whence the receipts are derived.

No new projects have been undertaken since March 4, 1909, but prior to that date 32 primary projects had been undertaken, the net investment in which on June 30, 1910, amounted to $52,945,441.03, as is shown in the following table:

Net investment in reclamation projects on June 30, 1910.

State.	Project.	Net investment.
Arizona	Salt River	$8,430,959.16
Arizona-California	Colorado River	44,201.97
California	Orland	378,608.11
Arizona-California	Yuma	3,781,355.19
Colorado	Grand Valley	73,110.38
Do	Uncompahgre	4,166,639.04
Idaho	Boise	3,373,292.80
Do	Minidoka	2,900,896.56
Do	Snake River storage	69,142.75
Kansas	Garden City	378,316.07
Montana	Huntley	854,420.36
Do	Milk River	519,387.23
Do	St. Mary	265,874.03
Do	Sun River	599,958.59
Montana-North Dakota	Lower Yellowstone	2,888,899.93
Nebraska-Wyoming	North Platte	4,609,476.50
Nevada	Truckee-Carson	3,975,976.42
New Mexico	Carlsbad	617,665.56
Do	Hondo	346,024.76
Do	Leasburg	193,418.82
New Mexico-Texas	Rio Grande	76,060.58
North Dakota	Buford-Trenton	278,294.40
Do	Williston	528,171.31
Oklahoma	Cimarron	8,873.17
Oregon	Central Oregon	40,133.44
Do	Umatilla	1,155,983.22
Oregon-California	Klamath	1,830,600.39
South Dakota	Bellefourche	2,313,525.22
Utah	Strawberry Valley	913,177.91
Washington	Okanogan	533,281.41
Do	Yakima	3,116,333.48
Wyoming	Shoshone	3,378,887.87
Total		52,945,441.03

In addition, there had been invested in secondary projects, June 30, 1910, $587,390.71; in town-site development, $10,955.49; in Indian irrigation, $198,704.21; and for general expenses, $38,811.44. In view of the immense areas of land included, the magnitude and expense of the engineering work necessary to provide for their reclamation, and of the importance to the waiting settler and landowner that water be applied to the land and reclamation effected as soon as possible, the efforts of the department have been directed toward the completion of projects already undertaken rather than the search for or undertaking of new projects. The following table contains a summary of the results of the reclamation work from June 30, 1902, to June 30, 1910:

Summary of results of reclamation work, June 30, 1902, to June 30, 1910.

Material excavated	cubic yards		66,121,971
Class 1	cubic yards	57,842,078	
Class 2	do	4,308,489	
Class 3	do	3,971,404	
Volume of storage dams	cubic yards		5,632,157
Volume of dikes	do		3,104,738
Available reservoir capacity	acre-feet		4,484,500
Number of tunnels			68
Aggregate length of tunnels	feet		96,512
Canals carrying less than 50 second-feet	miles		3,874
Canals carrying from 50 to 300 second-feet	do		790
Canals carrying from 300 to 800 second-feet	do		356
Canals carrying more than 800 second-feet	do		307
Canal structures costing less than $500			17,669
Canal structures costing from $500 to $2,000			728
Canal structures costing over $2,000			462
Number of bridges			1,487
Aggregate length of bridges	feet		35,561
Riprap	cubic yards		286,122
Paving	square yards		264,864
Cement used	barrels		1,133,878
Concrete	cubic yards		961,908
Roads	miles		460
Telephone lines	do		1,319
Telephones in use			550
Buildings erected:			
Offices			54
Residences			182
Barns and storehouses			189
Area of lands for which water can be supplied	acres		876,684
Acreage included in projects now under way			3,100,000

The receipts from the sales of public lands, while considerable, were found to be insufficient for the speedy completion of existing projects, and it was believed that additional amounts could be used to advantage. Accordingly, with your recommendation and earnest indorsement, Congress was asked to authorize the issuance of certificates of indebtedness or bonds against the reclamation fund. As soon as the importance of the requested assistance was understood the recommendation met with a hearty response from Congress in the enactment of the law of June 25, 1910 (36 Stat., 835), which authorized the issuance of not exceeding $20,000,000 in certificates of indebtedness repayable out of the reclamation fund five years after the date of their issue. The appropriation was made subject to the provision that it should be expended upon existing projects and their necessary extensions and that no part of the same should be expended until after the project should be examined and reported upon by a board of engineer officers of the United States Army and approved by the President as feasible, practicable, and worthy. A board of army engineers was immediately designated by you and spent the summer in field examinations of the several projects. The board is now engaged in the compilation of the data secured and in preparing its report. Pending the submission of this report and your consideration thereof, preliminary to allotting the proceeds of the certificates to the projects selected, it has been deemed inadvisable to make a general allotment from the reclamation fund for the coming year, and only such allotments have been made as are deemed essential for the continued and economical operation upon the projects. Other legislation enacted during the last session of Congress and referred to more particularly in another portion of this report will materially aid the settlers and the Government in the settlement and development of reclamation projects.

It is important to the reclamation of arid lands contiguous or adjacent to existing projects, to the Government from the standpoint of revenue, and in line with practical and useful conservation, that legislation be enacted authorizing the Secretary of the Interior to dispose of any surplus water available from irrigation projects to persons, associations, or corporations operating systems for the delivery of water to individual water users for the irrigation of arid lands, and I earnestly recommend the enactment of such legislation.

Private lands purchased or condemned for use in construction of reclamation projects and public lands reserved and improved for this purpose should, when no longer needed, be disposed of, and I therefore recommend the enactment of a law which will authorize the Secretary of the Interior to sell at public auction such lands when no longer needed for the purpose for which acquired or reserved, the receipts from such sales to go into the reclamation fund.

A system of graduated payments of construction charges would probably have been advantageous to the settlers had it been adopted as reclamation projects were opened, but under present conditions I do not think it advisable to adopt this system for all existing projects. There are, however, several projects, particularly those known as the "pumping projects," where payments, by reason of local conditions, have not been made, and the department should be authorized to adopt some plan which will relieve the settlers and enable it to work out a scheme of payments which will ultimately return the cost of the projects to the reclamation fund. The enactment of Senate bill 6842, now pending, would help to solve existing difficulties on such projects.

Without experimentation in the operation of reclamation works and an understanding of local needs and conditions it is difficult to intelligently fix the terms, conditions, and amounts of construction charges, and I am of the opinion that in the future, before opening up new projects or new units of projects, it will be advisable to furnish water to settlers and landowners on a rental basis for a limited period, so that the department may arrive at an understanding of the needs and conditions of the projects and the charges and terms which should be fixed to insure favorable conditions to water users and to secure the return to the reclamation fund of the construction cost.

Section 5 of the act of Congress approved June 25, 1910, forbids entry of or settlement upon lands reserved for irrigation purposes, until the Secretary of the Interior shall have established the unit of acreage and fixed the water charges and a date when water can be applied and made public announcement thereof. In many projects the areas of public land to be opened to entry will be comparatively small in extent, but valuable on account of their fertility and irrigable character. A more equitable distribution of the lands among would-be settlers and an avoidance of hardship would be secured by opening these lands in a manner similar to that followed during recent years in opening Indian reservations, namely, by drawings. I accordingly recommend the enactment of legislation which will authorize the Secretary of the Interior to open such areas to settlement and entry by public notice, which notice shall prescribe the manner in which the lands may be settled upon, occupied, and entered by persons entitled to make entry thereof.

RECLAMATION OF ARID PUBLIC LANDS BY THE STATES.

The act of Congress approved August 18, 1894 (28 Stat., 372), authorizes the Secretary of the Interior, with the approval of the President, to enter into contracts with States containing public arid lands, to patent to each of the States to which the law is applicable not to exceed 1,000,000 acres of land upon their reclamation through the State or its agent. Ten years was allowed the State within which to effect the reclamation, after the segregation of the lands, and the latter were to be disposed of to actual settlers in areas not greater than 160 acres. Various amendatory acts have been passed amending the grants, allowing additional time within the discretion of the Secretary of the Interior for reclamation, and authorizing the Territories of New Mexico and Arizona to receive the benefits of the law upon complying with its provisions. New Mexico has accepted the conditions imposed by the act and applied for the segregation of lands.

Arizona has not yet taken advantage of its provisions. During the past year every effort has been made to expedite action upon applications presented for the segregation of lands under this act consistent with assurance that the lands segregated are desert in character, that sufficient water for irrigation is available, and that the work proposed will effect their permanent reclamation. Examination for lands applied for has been placed in the hands of a departmental engineer inspector, who is assisted by competent engineers from the field force of the General Land Office. Regulations and instructions issued have been directed to the improvement of methods of examination and report, and their observations should result beneficially to the Government, the States, and the prospective settlers.

Since the passage of the act in 1894 application has been made for 6,587,508 acres, of which amount 2,765,946 acres were applied for during the past year. Increased activity in this direction is to be attributed to the interest aroused by the operations of the United States Reclamation Service, to the seeking by private capital for investments in irrigated lands, and to the rapidly increasing demand of the public for fertile and productive agricultural lands.

It has frequently happened in the past that when the States were engaged in the preliminary work of surveying, and the endeavor to ascertain the feasibility of the reclamation of the land, that speculators would file or enter upon the lands, embarrassing or defeating the success of the state reclamation projects. Therefore, in my last annual report, legislation authorizing the temporary withdrawals of lands in the interest of the States and Territories pending preliminary investigation was recommended, and was enacted into law March 15, 1910. The States have already taken advantage of the provisions of this act by applying for the temporary segregation of 690,659 acres of land.

With proper supervision by the General Government and the States to secure the permanent reclamation of the lands segregated by means of durable and permanent reservoirs, canals, and structures, this act permits the States to assist most advantageously in the reclamation of the public arid lands of the West.

Under existing law a segregation once made withdraws the land for a period of ten years. Provision should be made for the beginning of actual construction work within a shorter period, and I renew the recommendation made in my last report that section 4 of the act be amended by adding to the second paragraph a proviso to the effect that unless actual construction of the reclamation works is begun within three years after the segregation of the lands the Secretary of the Interior is authorized to declare the annulment of the contract and restore the lands segregated to the public domain.

The following table summarizes the action taken under the provisions of the law mentioned up to and including June 30, 1910:

State desert-land segregation under section 4 of the act of August 18, 1894 (28 Stat., 372–422), and the acts amendatory thereof, commonly known as the Carey Act, with the action taken thereon from the passage of the act of June 30, 1910.

State.	Applied for.	Segregated.	Rejected or relinquished.	Patented.	Reconveyed.	Time to reclaim extended.
	Acres.	*Acres.*	*Acres.*	*Acres.*	*Acres.*	*Acres.*
Colorado	728, 881. 29	90, 964. 28	8, 106. 70	....	....	....
Idaho	2, 842, 811. 88	1, 298, 895. 58	323, 068. 25	157, 084. 90	....	....
Montana	524, 440. 92	172, 249. 01	26, 200. 40	18, 296. 91	....	52, 480. 92
Nevada	121, 083. 88	10, 246. 02	22, 625. 56	....	....	....
New Mexico	20, 164. 68	....	....	....	....	....
Oregon	568, 726. 95	295, 350. 65	140, 492. 08	50, 303. 13	....	....
Utah	410, 245. 76	126, 185. 61	237, 020. 83	....	....	......
Wyoming	1, 371, 153. 56	965, 094. 78	197, 758. 60	92, 229. 33	1, 032. 90	17, 397. 53
Total	6, 587, 508. 92	2, 958, 985. 83	955, 272. 42	817, 864. 27	1, 032. 90	69, 878. 45

RECAPITULATION.

	Acres.
Applied for	6, 587, 508. 92
Segregated	2, 958, 985. 53
Relinquished or rejected	955. 272. 42
Acted on	2, 673, 250. 97
Total	6, 587, 508. 92

INDIAN AFFAIRS.

The policy of the Indian Service to-day is not the policy of the Government in its earlier dealings with the Indians, or even within the last decade, and it will serve no useful purpose in considering the obligations of the department to discuss or give an historical epitome of the earlier methods applied in dealing with the Indian. The problems of to-day are essentially those of progressively assimilating the Indian into the body politic, with the greatest degree of protection to the Indian and with a minimum of injury to the community or settlement to which he may belong. It has long been apparent that the tribal relations of the Indian must vanish and that he must ultimately take on the responsibilities and obligations of citizenship and so far as possible adapt himself to that course of life to which every individual must yield. To change the characteristics of a race such as the Indian and compel the surrender of his traditions, customs, and impulses, is a matter of generations rather than of years. This is more particularly realized when we contemplate the stubborn resistance which the full-blood Indian asserts against the efforts of the Government to transform him into a farmer, with fixed habitation, or to interest him in the trades or common vocations of life. The Indians under the supervision of the Department of the Interior through the Office of Indian Affairs are principally upon Indian reservations.

The Indian population as compiled by the Office of Indian Affairs on reservations is 304,819. By States and Territories it is as follows:

Population of Indians.

Arizona[a]	38, 844	Oklahoma [a]	117, 088
California	20, 976	Oregon [a]	3, 477
Colorado	815	South Dakota	20, 303
Florida	358	South Carolina	60
Idaho	3, 988	Texas	470
Indiana	243	Utah	1, 697
Iowa	372	Washington	9, 625
Kansas	1, 385	Wisconsin	10, 303
Maine	425	Wyoming	1, 701
Michigan	6, 784		
Minnesota	11, 095	Grand total (exclusive of Alaska)	304, 819
Montana			
Nebraska	3, 784	Five Civilized Tribes, including freedmen and intermarried whites	101, 287
Nevada	6, 192		
New Mexico	18, 837		
New York	5, 476	Exclusive of Five Civilized Tribes	203, 532
North Carolina	1, 999		
North Dakota	8, 256		

The number of industrial, reservation, nonreservation, and day schools is 325.

The total number of Indians who have been given their full rights within the last twelve years is 89,118. The total number of restricted Indians remaining is 215,701. It is the policy of the Indian Service to grant citizenship or remove the restrictions from the Indian only when he has satisfactorily shown that he is capable in a reasonable degree of managing his own affairs, and where he possesses an allotment of land to limit his right of alienation so as to require retention of a specific portion thereof as a homestead. There should be no hesitancy on the part of the Government in granting citizenship to the Indian where he shows himself to be qualified. On the contrary, to withhold citizenship tends to discourage the development of the very elements of character in him which the Government is undertaking to stimulate, and if citizenship is granted to the Indian, he should be held to the same obligations of amenity to social, political, moral, and legal restrictions and obligations as any other citizen, and the Government should no longer undertake to exercise tutelage over him. The scheme or plan of the Indian Service in the line of this development of civic capacity in the Indian should be practical and not theoretical, and it is with this object in view that the Indian Service has reorganized its work and remodeled its force. Details of the system now in practice are set out with particularity in the report of the Commissioner of Indian Affairs. To more expeditiously carry out the Government's policy of individualizing and fitting the Indian for civic usefulness, one of the most potent influences is the distribution of tribal property by individual allotment. This work has progressed with great rapidity during the past year and as rapidly as the force at the command of the office would permit. By this distribution of the tribal estate another evil is avoided, viz, the presentation of "trumped up" claims by tribal representatives and by speculative attorneys. If some of the practices that have existed are permitted to continue both in this respect and in the probate of the estates of many of the Indians, and the acquisition of their property by unscrupulous whites through contracts and other methods of subterfuge, it may well be said that their property will in the first generation descend to the lawyers and the whites. It is the duty of the Government, so far as possible, to put an end to these and other evils of like character. Where it undertakes to extend protection to the Indian it should give protection of such a forceful character as will be productive of genuine results.

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[a] Returns are incomplete from these States.

The agricultural education of the Indian, as now undertaken through expert farmers and experimental farms, together with his advantages in the industrial schools set apart for that purpose, with the exercise of employment agencies, should rapidly develop the young among the Indians in useful pursuits. In the educational efforts put forth by the Government in behalf of the Indians it should no longer carry its work into the field which belongs to the State in which the Indian is situated; that is to say, as soon as the supervisory obligations of the Government have ceased over the Indian, and his property becomes taxable, it then becomes the duty of the State to care for his education under its common-school system. It is, however, difficult to fix the exact limits of supervision, or the extent or amount of effort which the Government should put forth as regards any particular Indian or body of Indians in the matter of education, culture, and refinement to make him or them citizens. The Government can hardly be expected to do for him more than to instruct him in the rudiments of learning and in the useful trades, viz, to give him an industrial, moral, and political education, so as to make him capable of self-support and self-control, as a unit of society, the criterion being that he is sufficiently equipped to care for himself according to the usual standard or measure of capacity of men in the average enlightened community.

Special attention has been given by the service to the sanitation of the schools and institutions maintained by the Government for the use of the Indians, as well as of their homes, and special effort has been made to free the Indian from the scourge of tuberculosis and trachoma.

Perhaps the most trying and difficult feature of Indian administration is the effort to inhibit the sale of liquor to them. Notwithstanding the vigilance of the federal officers, and prosecutions and convictions for offenses of this nature, a vast amount of mischief is done by the liquor traffic in preventing the advance of the Indian. The report of the Commissioner of Indian Affairs sets forth the activities of the service in this respect, and every effort will be made by the department to reduce to a minimum this evil. It is not, however, the function of the Government to perform and it can not properly exercise through its officers police duties in white communities and settlements organized under state and municipal laws, and when the Indian has been released from his restrictions and recognized as a citizen federal authority over him should cease and should no longer with reasonable propriety be exercised over his personal conduct.

The leasing of allotments of restricted Indians should not be made where the Indian can be induced to improve and cultivate the land. In exceptional cases where the lands contain minerals, or it becomes necessary to make beneficial use of water for irrigation within a limited period, leasing may be necessary upon approval by the department.

MILLING OPERATIONS ON MENOMINEE RESERVATION.

The logging and milling operations on the Menominee Indian Reservation are being carried on by the field officers of the Indian Service in a businesslike and prudent manner, and their reports show that these operations are a source of profit to the Indians.

I consider it unfortunate, under any view of the matter, that the Government is required under the law to carry on logging and milling operations for the Indians, believing that the proper policy is, generally speaking, to sell the timber as stumpage.

The government sawmill and plant located at Neopit, which was commenced in July, 1908, and finished in January, 1909, has a day and night capacity of 50,000,000 feet of lumber per annum; but the act of May 28, 1908, authorizes the cutting of only 20,000,000 feet annually, exclusive of certain dead and down timber. If the Government is to continue these operations, the limit of cut should be increased to 40,000,000 or 50,000,000 feet per annum.

RECLAMATION OF INDIAN LANDS.

There are large areas of irrigable lands within Indian reservations in the arid and semiarid regions. It is important to protect the water rights of the Indians and as rapidly as possible irrigate and reduce to cultivation such areas as are needed for the support of the Indians. Many of the Indians have not reached the stage of industry and efficiency sufficient to successfully conduct irrigated farms, nor can they be educated along these lines until provided with the water to irrigate their lands. Furthermore, it is believed that the advancement and education of the Indians along this line may be aided by leases of irrigated lands within reservations to the whites under conditions insuring the permanent attachment of a water right to the lands for the future welfare of the Indian, which can only be accomplished through beneficial use of the water. The leases should be made in reasonably small tracts for long terms, the maintenance charges for the irrigation system to be paid by the Indian leasing the land, and the whites so colonized that their agricultural operations will be an object lesson in industry and successful farming to the Indians on the reservation.

All purchasers of Indian lands under constructed irrigation systems should be required to pay a fixed maintenance charge, based upon the irrigable area of their lands, whether they farm them or not. They should also be required to pay their proportionate cost of the construction work performed upon the system subsequent to the date of their purchase.

Up to the present time a total of $5,547,237.58 has been expended in irrigation work upon Indian lands. The expenditures by projects and the estimated cost of their completion is given in Appendix I. The major part of this work has been performed under the supervision of the chief engineer and field engineers of the Indian Service, but certain irrigation work on Indian reservations authorized by Congress and provided for in the appropriations under the control of the Office of Indian Affairs is being performed by the Reclamation Service, the cost of the work being returned to the reclamation fund from the Indian appropriation.

About 300,000 acres of land in Indian reservations have been reclaimed by irrigation works, of which amount 118,640 acres are being irrigated by Indians and 42,080 acres by white lessees and purchasers. The area which will be irrigated when contemplated works are completed amounts to approximately 1,100,000 acres. The total appropriations for irrigation purposes during the past year amounted to $1,365,000. By act approved June 25, 1910, Congress authorized the Secretary of the Interior to reserve from location, entry, sale, allotment, or other appropriation any lands within

Indian reservations valuable for power or reservoir sites, or which may be necessary for use in connection with any irrigation project. This authorization will be of great value in providing for and accomplishing the irrigation of arid Indian lands.

INDIAN WAREHOUSES.

In my annual report for 1909 I recommended the discontinuing of the United States Indian warehouses at New York, Chicago, St. Louis, Omaha, and San Francisco, and the substitution thereof of a purchasing-agent system. I believed that such a change would result in a net saving to the Government in the purchase of Indian supplies by securing wider competition, especially among local business firms; by securing greater promptness in the payment of claims against the Government; by preventing an overpurchase of supplies because of the necessity of submitting estimates in advance of the time that goods would be needed, and because of the inconvenience to contractors through the furnishing of bonds and the delay between the delivery of goods and the payment thereof. It was hoped also to save in the cost of inspection and in the handling of claims at Washington.

Congress failing to discontinue the warehouses, I have therefore directed a careful investigation of purchases, and of warehouse and Office of Indian Affairs methods of handling contracts and claims, and the making of awards, for the purpose of utilizing the warehouse system to the best possible advantage in the purchase and shipment of Indian goods and supplies, and putting them on as economical a basis as possible, consistent with efficiency.

CLAIMS.

Claims are constantly being advanced on behalf of Indians and Indian tribes for compensation for losses alleged to have been sustained in past relations with the Government, in connection with which permission to employ counsel is sought, the proposed contracts of employment usually providing for an annual salary and a contingent fee of a percentage of ultimate recovery. As the first step in the formal assertion of such claim is usually to procure an act of Congress conferring jurisdiction in the Court of Claims to hear the matter, the contract contemplates the retention of hired lobbyists.

General employment of attorneys has been by me discountenanced, except in those cases where a distinct showing of the necessity therefor is made, and combination of annual salary and contingent fee is not sanctioned, because, in effect, it amounts virtually to a roving commission to the attorney to foment litigiousness among the Indians. The Office of Indian Affairs has been directed to require attorneys seeking contingent employment to submit statement of the facts and law justifying litigation, whereupon the propriety of pursuing the matter and the compensation to be allowed in the event of recovery can be considered by both this department and the Attorney-General.

It is earnestly suggested, however, that legislation be enacted requiring the court, upon rendering judgment against the Government, to fix the compensation of counsel.

FIVE CIVILIZED TRIBES.

The report of the Commissioner to the Five Civilized Tribes shows the details incident to the allotment of land and other things necessary to be done in connection with the work of winding up the affairs of the Five Civilized Tribes, the work accomplished by the Union Agency, and other matters coming under the supervision of the department, including the report of the supervisor of schools.

The total number of persons on the final approved rolls, as heretofore reported, aggregates 101,474. During the year, however, extensive field investigations made for the purpose of locating citizens who have made no applications for allotments demonstrated that 235 died prior to the dates fixed by the various agreements to entitle them to allotments. Therefore the number has been somewhat reduced, there now being 10,955 Chickasaws, 26,730 Choctaws, 18,716 Creeks, 3,122 Seminoles, and 41,716 Cherokees, a total of 101,239. By act of Congress the rolls of these tribes were finally closed March 4, 1907. It has been persistently maintained that many persons entitled to participate in the distribution of the property of these tribes were not enrolled. The department is now carefully investigating and considering such instances with a view of submitting a report and final recommendation to Congress concerning the disposition of such cases.

During the year the allotment of land to all members of these said tribes has been practically completed, and there now remains to be sold or otherwise disposed of the remaining undivided property and division of the proceeds to individual citizens of the respective tribes. Before such can be finally accomplished, however, suits before the United States Supreme Court affecting the rights to enrollment of about 5,500 new-born Cherokees, who have been tentatively allotted land, must be disposed of. There is also pending in the Court of Claims a suit by certain persons claiming the right to be enrolled as Cherokee freedmen. The matter of equalization of Creek allotments will also require congressional consideration, and legislation will be necessary to dispose of 445,000 acres segregated coal and asphalt lands in the Choctaw Nation.

Regulations were promulgated by the department under date of October 12, 1910, for the disposal by public auction of all of the other remaining unallotted lands of the Five Civilized Tribes, aggregating about 1,750,000 acres. This, however, does not include the forested lands of the Choctaw Nation, aggregating approximately 1,370,000 acres, which have heretofore been withheld from allotment. It will be necessary to appraise the pine and hardwood timber on these lands before sale, which work is now in progress, and upon completion they will be offered at public sale as now authorized by law.

In the Seminole Nation the allotment of 360,790 acres to 3,122 citizens has been completed, and there remain to be disposed of 3,448 acres of tribal lands embraced in 54 tracts of from 1 to 160 acres each. No allotment deeds have yet been issued or delivered to any citizens of the Seminole tribe. During the year allotment deeds to all such citizens were prepared on new forms and are now held at the department, at the instance of the Department of Justice, awaiting the determination of certain suits. Although a great number of conveyances of such allotted lands have been made by individual members, it is considered that all such sales are invalid prior to the recording and delivering of allotment deeds. Investigation having developed that much fraud had been perpetrated in connection with these conveyances, Congress, at its last session, provided for the employment of a special attorney of the Department of Justice to investigate the transactions and to take proper action in connection with prosecution of persons connected with such frauds.

In the Creek Nation allotments of 160 acres each have been made to 18,716 enrolled citizens, 2,999,400 acres having been allotted, leaving 63,610 acres embraced in 1,302 separate tracts of from 1 to 1,100 acres to be disposed of. During the year the remaining few allotments have been completed, 101 tracts reserved for churches and schools were surveyed and deeds executed, and descriptions of unallotted lands have been tabulated preparatory to disposal. The Creek agreement provided that 160 acres of land of an appraised value of $1,040 should constitute the standard value of an allotment and that those receiving land of less value should receive a sufficient amount from the tribal funds to equal such amount. It being ascertained that the funds of the Creek Nation were insufficient after the enrollment of new-born citizens to equalize allotments on such basis, Congress, by an act approved March 3, 1909 (35 Stat., 871), provided for the equalization of Creek allotments on a basis of $800, to be effective when ratified by the Creek council, but such provision was rejected by that body April 22, 1909; therefore nothing further has been attempted toward equalizing allotments in this nation.

In the Choctaw and Chickasaw nations all allotments have been completed to 37,685 enrolled citizens, each receiving 320 acres of average land of an appraised value of $1,041.28. The lands so allotted aggregate 8,312,900 acres, leaving approximately 3,285,000 acres to be disposed of. The work of tabulating the descriptions of such unallotted land, excepting about 1,370,000 acres of timber lands and also excepting 445,000 acres of segregated coal and asphalt lands, preparatory to the disposal thereof, is in progress. During the past year 278 allotments have been made requiring field investigation in each instance, 1,575 allotment deeds were prepared and 4,077 delivered, and 206 tracts of from 1 to 20 acres each reserved for churches, schools, and cemeteries were surveyed and data secured preparatory to the issuance of deeds. The act of Congress of March 3, 1909 (35 Stat., 781), provided for the equalizing of allotments of the Choctaw and Chickasaw nations by the payment from tribal funds of twice the appraised value of land to those having $50 or less due to complete their allotments to $1,041.28, and rolls have been prepared containing the names of 36,849 citizens to be paid an amount aggregating $317,997. This payment is in progress and on June 30, 1910, the sum of $120,094.16 had been paid to 11,875 citizens.

The act of Congress approved April 26, 1906, provided that Choctaw and Chickasaw freedmen should have the preference right to purchase unallotted lands at the appraised value sufficient to bring their allotments up to 40 acres in area prior to December 1, 1910. About 3,000 freedmen are entitled to the benefits of this law, to purchase in the aggregate about 45,000 acres, and applications are now being received and considered.

In the Cherokee Nation complete or partial allotments aggregating 4,348,760 acres have been made to 40,194 citizens, each allotment constituting 110 acres of average land of a standard appraised value of $325.60. There remain 1,522 enrolled citizens who have made no selections and there are 50,300 acres of unallotted land. During the year all interested citizens were notified that selections must be made by July 31, 1910, after which no further allotments would be made. Three thousand five hundred and seventy-six deeds were prepared and 16,176 delivered. Six hundred and forty-eight tracts of land from 1 to 3 acres each, reserved for schools, churches, and cemeteries, were surveyed and data secured preparatory to issuance of deeds. The 50,300 acres of unallotted land are included in 2,728 tracts of from 1 to 550 acres each, and tabulated descriptions have been prepared preparatory to disposal thereof.

In conformity with that provision of the act of March 3, 1909 (35 Stat., 781), relative to the equalization of allotments on which there was due not to exceed $50, pay rolls containing the names of 35,013 citizens of the Cherokee Nation, having due them $174,814.34, have been prepared and payment is now in progress, 16,006 citizens having been paid $91,819.16 to June 30, 1910.

A list of about 900 citizens to whom no allotments were made by reason of the failure of lands suitable for such purpose, and who have indicated a desire to receive money in lieu of lands, has been prepared, to receive $651.20 each, in accordance with the provisions of the act of April 26, 1906, which provides that if any citizen of the Cherokee tribe shall fail to receive the full quantity of land to which he is entitled as an allotment, he shall be paid out of any of the funds of such tribe a sum equal to twice the appraised value of the amount of land thus deficient, and payment to such persons is now in progress. No allotment certificates or deeds, however, can be issued to 4,400 Cherokees enrolled under the act of April 26, 1906, until their right to enrollment is decided in the pending suit before the United States Supreme Court.

The contests between citizens for the allotment of the same tracts of land may be said to be completed. During the year 255 cases were disposed of; on July 1, 1910, there remained 53 cases, 25 of which were awaiting the time for filing appeal or motion for rehearing to expire, and 28 of which had been appealed to the department. The number of allotment contests instituted in the Five Civilized Tribes aggregated 892 in the Creek Nation, 56 in the Seminole Nation, 1,437 in the Choctaw Nation, 3,491 in the Chickasaw Nation, and 5,073 in the Cherokee Nation, a total of 10,949 cases. During the year 20,785 certified copies of the record pertaining to enrollment and allotments, together with copies of testimony aggregating 737,000 words, were furnished the public, from which there was received $11,695.

The act of Congress approved May 27, 1908 (35 Stat., 312), provided for the removal of restrictions on land of certain classes of citizens of the Five Civilized Tribes, and further provided that such unrestricted land should be subject to taxation and that the remaining restricted land should be exempt from taxation until such time as the restrictions were removed therefrom. Under the provisions of such law restrictions were removed, wholly or in part, from about 71,000 Indians, leaving approximately 30,000 in the restricted class, from whom, however, restrictions are removed in individual cases if the Indian is considered competent; others are permitted to dispose of portions of their lands under supervision of the department. Notwithstanding the provisions of law relative to nontaxation of restricted lands, the state officials of the various counties, who had been furnished at great expense with lists fully descriptive of all the allotments and the enrollment status of each allottee, assessed lands for taxes of the restricted class for the years 1908 and 1909, and advertised for sale all such land on which taxes assessed had not been paid. Suits were therefore filed in the United States court and temporary injunctions granted against the sales of restricted land, and efforts are now being made to prevent the continuation of this practice.

The unallotted timber lands in the Choctaw Nation aggregate approximately 1,370,000 acres. Allotted lands are scattered through and adjoining such tracts, consequently extensive depredations have been committed which it is practically impossible to prevent, although a force is constantly employed for such purpose, and a number of indictments were found by a federal grand jury for unlawful cutting of timber on tribal lands. In such cases 15 convictions were secured and other cases dismissed by settlement, the amount realized aggregating $10,288.79. This action has had a wholesome effect in stopping these depredations.

Under existing law Choctaw and Chickasaw citizens are permitted to dispose of timber on their allotments without supervision, and investigation has shown that from 3,000 to 5,000 allottees have contracted with numerous parties for the disposal of their timber, and that in none of the instances where investigation was made had an adequate consideration been given, and in many instances such contracts had been secured through misrepresentation and fraud as to the character of the instrument. These sales provide for the removal of timber in from five to twenty-five years, and in view of the investigation of complaints made by reason of the misrepresentations of the parties and the facts developed in connection with these unlawful transactions, the matter has been referred by this department to the United States Attorney-General for appropriate action. No further action has been taken by way of instituting suits to set aside illegal conveyances of allotted land prior to the removal of restrictions, awaiting final determination of the suits. Of the 27,380 suits filed, as previously reported, 1,543 were dismissed during the year, which, with the 3,716 dismissed prior to July 1, 1909, makes a total of 4,619 dismissed. The decision of Judge Campbell sustaining the demurrer of the defendants in these so-called " restriction suits " has since been reversed by the circuit court of appeals, and it is now understood the case has been carried to the Supreme Court of the United States under the authority conferred by section 3 of the act of June 25, 1910. During the year 1,976 vacant lots and 2,581 forfeited lots, located in 179 towns, were advertised and sold at public auction in the Creek, Cherokee, Choctaw, and Chickasaw nations, the amount realized aggregating $142,591.25. Certain areas of land were also surveyed and platted and added to four towns on segregated coal lands.

The total output of coal from approved leases on tribal segregated coal and asphalt lands in the Choctaw Nation during the year was 2,692,291 tons, a decrease of 36,146 tons as compared with the fiscal year 1909. Nine thousand one hundred and seven tons of asphalt were mined, as compared with 4,121 tons for the year 1909. The total amount of royalty paid on account of coal and asphalt was $250,161.76. Coal operations ceased March 31, 1910, on account of failure of the operators and the miners to agree upon a wage scale, and had not commenced again at the close of the fiscal year.

Under the Indian appropriation act of June 21, 1906, the drilling of test holes on the unleased segregated coal lands has been completed. Thirty-seven holes have been drilled in various localities to depths ranging from 113 to 1,510 feet, and a report of the findings is embodied in Senate Document No. 390, Sixty-first Congress, second session. Such report shows the workable area of the coal to be 283,649 acres on a basis of veins varying in thickness from 2 feet 4 inches to 6 feet and to a depth of 1,000 feet. The Geological Survey estimates that there are 371,000 acres of workable coal, using as a basis veins 14 inches thick to a depth of 3,000 feet.

DISTRICT AGENTS.

After a trial of two years the usefulness of the district agency service has been fully demonstrated, and by reason of the large number of Indians, the extent of country, and the complicated conditions existing their services are indispensable to the protection of the interests of the restricted citizens of the Five Civilized Tribes. In two-thirds of the counties of the eastern porton of the State covered by the Five Civilized Tribes there is an earnest and conscientious cooperation between the probate courts and the district agents. In a few counties, however, it is only partial, while in the remainder the attempts to protect minors in the sale of land have been looked upon as intrusions, and, in one instance, the complaints became so numerous and the alleged frauds so flagrant that it was necessary for the matter to be referred to the Department of Justice for appropriate action.

In addition to probate matters the duties of the district agents include the adjustment of intruder cases, the handling of mineral, agricultural, and grazing leases made by restricted Indians, assisting the Department of Justice in connection with investigation of suits to clear title, investigation and execution of deeds by full-blood heirs where allottees died prior to May 27, 1908, which cases require the approval of the department, the receiving and investigation of applications by restricted Indians for removal of restrictions, the sale of land by such classes when under supervision of the department, and advising and counseling with Indians relative to their individual land transactions.

The efficiency of this branch of the service would be advanced by an increase in the number of employees, thereby admitting of a more deliberate consideration and closer attention to individual restricted Indian matters.

The report of the superintendent of Union Agency, through which office the affairs of restricted Indians numbering about 30,000 are handled, shows there was collected from various sources, principally from sale of town lots, coal royalties, and moneys due individual Indians from sale of restricted lands made under supervision of the department and royalties on oil and gas leases, $2,562,736.27, and the disbursements aggregated $2,183,964.67. There was a total of 5,732 applications filed during the year by citizens for removal of restrictions, of which 2,004, aggregating 64,147 acres, were approved conditionally and land sold under the supervision of the department, and 1,331, aggregating 76,684 acres, were approved unconditionally, and said Indians permitted to dispose of their lands without restrictions, the total area from which restrictions were removed being 140,831 acres. Of the 2,004 conditional removals of restrictions, 627 tracts were advertised and sold, aggregating 53,192 acres, the consideration received therefrom amounting to $566,666. During the year a change was made in the method of advertising the lands so as to show the appraisement thereof in the advertisement. There was collected $100,790.69 as grazing fees on unallotted tribal lands during the year.

SCHOOLS.

Oscar H. Lipps assumed charge of the schools of the Five Civilized Tribes January 10, 1910, relieving the superintendent and the supervisors in each of the nations. In view of the dilapidated condition of many of the buildings, it has been decided to abandon a part of them and repair and equip those remaining. It has also been decided to introduce in the course of study the subjects of agriculture, manual training, and domestic science.

In the Choctaw Nation four tribal boarding schools were maintained, with an enrollment of 674, and 291 pupils were enrolled in contract boarding schools. One hundred and sixty-one day schools were maintained or assisted, in which were enrolled 584 Indians, 5,153 whites, and 502 negroes.

In the Chickasaw Nation five tribal boarding schools were maintained, with an enrollment of 517, and 106 pupils were enrolled in contract boarding schools. One hundred and forty-eight day schools were maintained or assisted, in which there were enrolled 323 Indians, 7,042 whites, and 537 negroes.

In the Cherokee Nation three tribal boarding schools were maintained, with an enrollment of 377. One hundred and forty-nine day schools were maintained or assisted, in which there were enrolled 1,681 Indians, 3,161 whites, and 209 negroes.

In the Creek Nation seven tribal schools were maintained, with an enrollment of 869. One hundred day schools were maintained or assisted, in which there were enrolled 216 Indians, 1,699 whites, and 2,412 negroes.

In the Seminole Nation two tribal schools were maintained, with an enrollment of 254 Indians, 211 whites, and 163 negroes.

The total cost of the maintenance of these schools during the year was $412,065.78.

OIL.

There were 1,563 mineral leases covering lands of restricted Indians requiring the approval of the department, practically all oil and gas, filed with the superintendent of the Union Agency during the year, making a total of mineral leases filed to June 30, 1910, of 20,828, many of which, however, cover lands upon which restrictions have since been removed and lessees removed from departmental supervision. It is estimated that 44,221,000 barrels of oil were marketed during the year and that 44,323,000 barrels were in storage on June 30, 1910. About 28,000,000 barrels were run from land under leases still subject to the supervision of the department, under which Indians were paid, through the superintendent of the Union Agency, royalty aggregating, approximately, $1,000,000, practically all leases providing for a royalty of 12½ per cent of the gross production.

The three pipe lines carrying oil from the Oklahoma field, namely, the Prairie Oil and Gas Company, which is a subsidiary company of the Standard Oil, the Gulf, and the Texas Pipe Line companies, are paying at the present time 42 cents per barrel. This is an increase of 7 cents over the price of a year ago. The question of whether a combination exists among the three pipe lines named for the purpose of restricting the price of oil has been brought to the attention of this department and is under investigation for appropriate action.

LEGISLATION.

Restricted allottees are permitted under existing law to dispose of timber and to lease their homesteads for one year and their other allotted lands for five years for any purpose without the approval of the Secretary of the Interior. As a result, these persons, who are considered incompetent to dispose of their lands, continually dispose of their timber and make leases for grossly inadequate consideration, as has been found in thousands of instances brought to the attention of the department. Under existing law, district agents are authorized, at the request of any allottee having restricted lands, to take such steps as may be necessary for the bringing of any suit or suits, and the prosecution and appeal thereof, to cancel and annul any deed, conveyance, mortgage, lease, or incumbrance of any kind or character, and to take all necessary steps to assist said allottees in acquiring and retaining possession of their restricted lands. It has been found in many instances that where frauds have been committed and action taken to secure cancellation of such lease or conveyance the Indian is importuned to revoke the authority previously given, and in many cases new leases or conveyances are taken providing no better compensation than in the instruments previously canceled.

I therefore recommend legislation as follows:

1. That sales of timber or stone and all grazing and agricultural leases executed by restricted Indians shall not be valid unless approved by local officers under rules and regulations of the department, but such legislation should not confirm existing contracts.

2. That the taking of any deed, mortgage, contract to sell, power of attorney, or other instrument affecting the use, control, or title of lands allotted to citizens of the Five Civilized Tribes prior to removal of restrictions therefrom be prohibited and provision made for proper penalty for the violation thereof.

3. That the attempt to procure any contract, unless previously authorized by the department, with any of the Five Civilized Tribes or enrolled members of freedmen thereof purporting to provide compensation to any person, firm, or corporation affecting tribal property or the undivided interest of any citizen therein be prohibited and any purported contract so secured should be declared null and void.

4. That in cases where any allottee having restricted lands for any reason fails or refuses to take possession thereof, the Secretary of the Interior, or any officer designated by him, be authorized to make on behalf of said allottee a lease of the same character as the allottee would be authorized to make, the proceeds to be disbursed to such allottee or his representative under rules of the department. Such legislation is desirable for the reason that several thousand allottees have as yet declined to recognize the law providing for allotments or to receive their allotment patents, consequently their lands are in possession of persons from whom the allottee receives no consideration.

5. That the sale of the surface of the segregated coal and asphalt lands of the Choctaw and Chickasaw nations, aggregating approximately 445,000 acres, be authorized, to be made under rules and regulations of the department, and that the mineral thereunder be disposed of separately, as may be deemed advisable in the best interest of the Indians.

6. That the Secretary of the Interior be authorized to abolish the position of any tribal officer when, in his judgment, such action is advisable.

7. That per capita payments from tribal funds to members of the Five Civilized Tribes be authorized at such time and in such amounts as may be deemed advisable.

8. By section 6 of the act of May 27, 1908 (35 Stat., 313), jurisdiction over persons and property of minor allottees of the Five Civilized Tribes of Indians was cast upon the probate courts of Oklahoma. Experience in the administration of the estates affected by the provision referred to has been unfortunate to an extent sufficient to raise doubts as to the wisdom thereof. While in the main the judges of the courts exercising such jurisdiction are men of integrity, several exceptions have been brought to light involving the loaning of money belonging to Indian minors to the judge exercising control over the minor's estate, and also to friends of such judge on notes indorsed by the latter. Attempts to reach such conditions under state law have been ineffective, and no means have been found of rendering the delinquent judge accountable under federal law, hence the advisability is urged of legislation which will remedy this defect.

PATENT OFFICE.

During the fiscal year ended June 30, 1910, the total number of patents granted was 36,287, an increase of 1,955 over the fiscal year ended June 30, 1909. The total money receipts from all sources were $2,022,043.26, an increase of $46,123.29 over the previous year. The total expenditures amounted to $1,953,549.76, an increase of $66,106.41. The excess of receipts over expenditures for the fiscal year ended June 30, 1910, was $68,493.50.

At the end of the fiscal year arrangements had been made for removing the models of inventions from a storage warehouse to the subbasement of the House of Representatives Office Building, in accordance with the provisions of the legislative, executive, and judicial appropriation act approved June 17, 1910, which arrangements have been carried out.

As a result of the increase in the business of the Patent Office and the increased force that must necessarily be provided for from year to year, the Patent Office building is now crowded to its utmost capacity. During the last fiscal year the branch printing office that was located in the basement of the Patent Office building was abolished and four additional rooms were assigned for the use of the examining force of the Patent Office. The Patent Office has been encroaching on the Secretary's office for some years past, but it will be impossible for the Secretary's office to give up any more space. It is, therefore, essential that some adequate provision be made in order to accommodate the increased force that will be necessary from year to year for the operation of the Patent Office. This may be accomplished by building an addition to the Patent Office in the court of the present building, or by constructing a new building, either for the use of the Patent Office or for the use of the Secretary's office and one or more of the other bureaus. Elsewhere in this report attention has been called to the fact that other bureaus of this department, especially those in rented quarters, are badly overcrowded. The question of providing sufficient office room is one of the most serious problems of the administration of this department in Washington.

PENSION OFFICE.

At the beginning of the fiscal year ended June 30, 1910, there were 946,194 pensioners on the roll. There were added thereto during the year 29,219, made up of original allowances, restorations, and renewals. There were dropped therefrom 54,330, occasioned by death, remarriage, minors attaining the age of 16 years, failure to claim for three years, and all other causes, making a net reduction in the rolls of 25,111, leaving the total number on the rolls at the close of the year of all classes 921,083, of which 602,180 were soldiers and sailors, 318,461 were widows and dependents, and 442 were army nurses.

The unexpended balances of the appropriations at the close of the fiscal year covered into the Treasury were as follows:

For pensions	$29,150.39
For medical examination	152,316.00
For salaries and clerk hire, pension agencies	10,480.58
For rent, contingent expenses, and inspection of agencies	9,214.16
For salaries, Bureau of Pensions	48,779.67
For salaries, per diem and expenses of special examiners	27,332.32
For installation of card-index system	3,479.97
Total	280,753.09

The amount expended for pensions during the year was $159,974,056.08, a decrease as compared with the previous year of $1,999,647.69. The cost of administration in connection with the adjudication of claims and the payment of pensions, etc., was $2,657,673.86. This is the smallest amount paid in any one year for such administration for twenty-seven years. The last-named figures show a reduction in the running expense of the bureau of nearly $200,000 as compared with the previous year.

There was disbursed for pensions from July 1, 1790, to June 30, 1865, $96,445,444.23. From July 1, 1865, to June 30, 1910, the total disbursements for pensions were $3,976,611,125.58. The cost of maintenance and expenses for same period, $118,362,734.68, making a total of disbursements from July 1, 1865, of $4,094,973,860.26.

At the beginning of the year the number of applications pending of all kinds was 66,226. At the close of the year there were pending 47,295 applications, exclusive of a number which have been placed in the abandoned files. The total number of applications filed during the year was 132,012. There were admitted during the year 97,207; rejected, 38,032; cases adjudicated where no benefits were derived other than those rejected, 1,198, making the total number adjudicated 136,437. Allowance of accrued pensions was made in 21,089 cases, being issues made for payment of pension in case of deceased pensioners from date of last payment to date of death.

There have been granted since 1861 by special acts, 32,401 pensions, of which number 19,422 were on the roll at the close of the year with an annual face value of $5,725,246. Only a little more than one-half of the amount is properly chargeable to special acts, as most of the beneficiaries had been previously pensioned under general laws at lower rates. During the second session of the Sixty-first Congress 6,063 pensions were included in special acts.

The largest number of pensioners on the roll at the close of any fiscal year was on June 30, 1902, when the total was 999,446. The largest amount paid for pensions in any one year was for the year ended June 30, 1909, when the total was $161,973,703.77.

As a matter of historical interest it is noted that there is one pensioner on account of the Revolutionary War remaining on the rolls, a daughter of a soldier who served in a New Hampshire company. She is 89 years old. Of the war of 1812, 338 widows were on the roll June 30, 1910. The last surviving pensioned soldier of the War of the Revolution died in 1869. The last widow pensioner of that war died in 1906. The last surviving pensioned soldier of the war of 1812 died in 1905.

Since the passage of the act of March 3, 1899, providing for division of pensions of resident pensioners of the United States who shall desert their wives or minor children or who are inmates of national or state soldiers' and sailors' homes, 10,843 claims have been filed, of which number 6,742 were allowed.

Eleven bounty land warrants were issued during the year, granting 1,440 acres of land, and 76 claims were adjudicated. Twenty-five claims were pending at the close of the year.

On June 30, 1910, there were also pending 1,512 reimbursement claims for expenses of last sickness and burial of deceased persons. There were disposed of during the year 8,202 claims, of which number 6,478 were allowed in whole or in part, 1,029 were disallowed, and 695 were abandoned.

There were 89 new cases presented to the Department of Justice on account of offenses against the pension laws, and indictments were found in 71 of such cases. There were 61 cases brought to trial during the year, in 55 of which convictions were secured. Only 9 of these cases were against persons rendering military or naval service. At the close of the year 145 cases were pending in the hands of United States attorneys.

Three civil suits were instituted during the year, and of those pending and instituted 1 was compromised and 2 settled by payment of amount involved, leaving 4 suits yet pending. There was recovered from all sources, including reclamation on forged checks, $20,557.38.

From time to time Congress has been asked to abolish or decrease the number of pension agencies in the United States, with a view to economy in the disbursements of pensions.

I recommend that this matter be given careful consideration by Congress, as it appears from the annexed report that in the neighborhood of $200,000 can be saved in the cost of the payment of pensions by the abolishment of all of the agencies.

I append hereto report of the Commissioner of Pensions on this subject:

OCTOBER 4, 1910.

The Honorable the SECRETARY OF THE INTERIOR.

SIR: I have the honor to submit herewith estimates for the payment of invalid and other pensions of the United States for the fiscal year ending June 30, 1912, and for other purposes, as follows:

Army and navy pensions	$153,000,000
Fees and expenses of examining surgeons	200,000
Salaries of 18 pension agents, at $4,000 each	72,000
Clerk hire and other services, pension agencies	385,000
Rent, New York City agency	4,500
Examination and inspection of pension agencies	1,500
Stationery and other necessary expenses of pension agencies	25,000

This estimate is based upon the law as it now stands, providing for 18 pension agencies. If, however, the number of agencies be reduced from 18 to 9, the expense of conducting the agencies would be as follows:

Salaries of 9 pension agents, at $4,000 each	$36,000
Clerk hire	345,000
Stationery and other necessary expenses	25,000
Examination and inspection of pension agencies	1,000

This would make a reduction in the expense of conducting the agencies of $80,000 per annum. Should the law be so changed as to abolish the pension-agency service and provide for the payment of pensions through a disbursing officer, under the Commissioner of Pensions, the cost of paying pensions would be as follows:

Clerk hire	$300,000
Stationery and other necessary expenses	20,000

This would make a reduction in the cost of paying pensions in this one bill of $168,000, as compared with the estimates for the 18 agencies. There would be a still further reduction in the cost of printing pension vouchers, printing pension checks, and in the keeping of records in this bureau which are now necessary under the present system, which would make a reduction (including the $168,000 above mentioned) of over $200,000 in the cost of the payment of pensions.

Very respectfully, (Signed) J. L. DAVENPORT,
Commissioner.

APPEALS IN PENSION AND BOUNTY LAND CLAIMS.

The number of appeals and motions for reconsideration pending at the beginning of the fiscal year, July 1, 1909, and those filed during the year, their disposition, and the number pending July 1, 1910, is shown by the following table:

	Pending July 1, 1909.	Filed during the year.	Rein-stated.	Total.	Disposed of.	Pending July 1, 1910.
Original merit appeals	644	4,428	1	5,073	4,850	223
Fee appeals	8	50	....	58	54	4
Motions for reconsideration	4	120	....	124	123	1
Total	656	4,598	1	5,255	5,027	228

In 264 cases the Pension Office was reversed, and in 194 cases the Commissioner of Pensions reported that upon reconsideration the adverse action taken by the bureau was receded from, and asked permission to allow appellants' contention. The department after considering the appeals decided that the action proposed by the bureau was warranted under the law and the evidence, and the papers were returned to the bureau for final action and favorable adjudication.

There were also during the year returned to the bureau for further action and report 215 cases for the reason that upon review it was found that additional and material evidence had been filed which had not been considered by the bureau, or that a special examination or another medical examination was thought necessary, or for various reasons the claims had not been properly adjudicated. At the close of the year there were 49 of such cases pending, which are included in the total number of pending appeals as shown by the table.

During the months of July, August, and September of the present year there were filed 731 cases. During the same period there were disposed of 746 cases, leaving 213 cases pending on October 1, 1910.

The rapid diminution in the number of cases presented to the Board of Pension Appeals indicates that its present numerical strength is more than sufficient, or will be more than sufficient, to care properly for the work coming before it at the beginning of the next fiscal year, July 1, 1911, unless there should be some additional legislation of a general nature calculated to raise new issues which would require final determination. All questions of law and practice under existing pension legislation have been well settled and determined.

I have, therefore, in the estimates transmitted in accordance with existing law to the Secretary of the Treasury for transmission to the

Congress provided with respect to the Board of Pension Appeals as follows:

That the Board of Pension Appeals be abolished from and after July 1, 1911, and that from and after said date, the duties theretofore performed by said board shall be transferred to the office of the Assistant Attorney-General for the Department of the Interior; that two members of said board, who are admitted to the bar, shall be transferred to the Assistant Attorney-General's office as assistant attorneys at a compensation of $2,500 and $2,250 per annum, respectively, and one member of said board shall be transferred to his office for services as medical expert at a compensation of $2,000 per annum, for the examination of appeals involving medical questions. That each person (other than the three who shall be transferred to the office of the Assistant Attorney-General as above provided) who is a member of the board at the date of its abolition shall be transferred to and assigned to duty in the Pension Office. That no vacancy hereafter occurring in either of the positions so transferred to the Pension Office shall be filled by original appointment, transfer, or otherwise.

The work of the Board of Pension Appeals on appeals coming to the Secretary's office from the final action of the Commissioner of Pensions, is the only exception in this department to the general rule that all appeals shall lie to and be considered in the office of the Assistant Attorney-General; and as an additional reason for my recommendation, I feel that there should be uniformity in the course of appeals from the final action of bureau heads to the department.

BUREAU OF EDUCATION.

The most important features of the work of the Bureau of Education during the last fiscal year have been the organization of a Division of School Administration and the provision by Congress for the appointment of a specialist in higher education. The Division of School Administration will have charge of all matters referred to this office relating to school legislation, the administrative methods of state and city education officers, and the statistical work relating to state and city school systems. It is also actively cooperating with the chief educational officers of the several States, with the object of establishing uniform regulations regarding the recognition of teachers' certificates. The specialist provided for by Congress will devote his attention to standards of college and professional education, the statistics and accounting systems of colleges and universities, cooperation in graduate studies, and the opportunities afforded in this country for foreign students.

Estimates have been submitted to Congress for the employment of 10 additional specialists and a number of additional clerks at a total cost of $75,000. If provision is made for these specialists they will cover the field of school administration, industrial education, education for housekeeping, school architecture, rural education, school hygiene, accounting and statistics, commercial education, secondary education, and wider use of the school plant. They will systematize the collection of information, will make personal visits to various educational institutions in order to familiarize themselves with the actual conditions in various parts of the country, and will make available to educational officers throughout the country the most approved methods for promoting educational efficiency.

During the last fiscal year there were maintained in Alaska 77 public schools for natives, in which 3,962 pupils were enrolled, with an average attendance of 1,704. During the summer of 1909 13 additional school buildings were provided. Instruction in agriculture, cooking, sewing, bench work, washing of clothes, cleaning of houses, sanitation, and hygiene is now general in the native villages throughout Alaska.

While this work has been carried on successfully under the direction of the Commissioner of Education, it is believed that still better results could be achieved if the field of work were not so far removed from the seat of administration. Moreover, this work of instruction has no logical place in the activities of the Bureau of Education, which is essentially a bureau of information and a clearing house for advice upon educational topics. I recommend that the schools for natives in Alaska be placed under the jurisdiction of the governor, through a resident commissioner of education, who should have charge of all the public schools. There is no good reason for separate administrative machinery for the public schools for white children and the schools for natives.

The reindeer industry has become one of the most important features of the economic life of the Eskimo, and the latest available statistics, those for the fiscal year ended June 30, 1909, give the total number of domestic reindeer in Alaska as 22,915. The number of reindeer owned by the natives increased from 46 per cent at the end of the fiscal year 1908 to 49 per cent at the end of the fiscal year 1909. This increase is due to the establishment of five new stations as additional centers of distribution, to the transfer of reindeer to natives in payment for services rendered, and to increase in the number of apprentices at the reindeer stations. The supervision of the reindeer industry is more out of place in the Bureau of Education than the supervision of schools for natives, as the supervision of this industry is properly a function of the district government. I recommend that it be transferred from the Bureau of Education to some supervisory officer under the governor of Alaska.

NATIONAL PARKS AND RESERVATIONS.

Congress is to be commended for setting apart vast areas for national parks, over 4,500,000 acres being now embraced in national reserves of this class. John Muir is authority for the statement that Professor Hayden, above all others, is entitled to the credit of securing the dedication of the Yellowstone as a national park, for he led the first scientific exploring party into it, described it, and urged upon Congress its preservation. The creation of the Yellowstone Park by the act of March 1, 1872, marks the beginning of these national institutions which now demand more than a perfunctory policy. The setting apart and dedication of our national parks for the people is the only practical means of preserving their wild grandeur from human desecration; "specimens of the best of nature's treasures have been lovingly gathered here and arranged in simple, systematic beauty within regular bounds."

Of the national parks that have been created by congressional action, the following are entitled to rank as worthy of being called national institutions: The Yellowstone, the Yosemite, the Sequoia, the General Grant, the Mount Rainier, the Crater Lake, the Glacier, the Mesa Verde, and there should be added the Grand Canyon of the Colorado, for the creation of which a bill is now pending in Congress. The areas of these and other parks, together with dates of establishment, are shown in the following table:

Date of establishment and area of national parks.

	Date of establishment.	Area.
		Acres.
Yellowstone, in Wyoming, Montana, and Idaho	Mar. 1, 1872	2,142,720.00
Yosemite, in California	Oct. 1, 1890	719,622.00
Sequoia, in California	Sept. 25, 1890	161,597.00
General Grant, in California	Oct. 1, 1890	2,536.00
Mount Rainier, in Washington	Mar. 2, 1899	207,360.00
Crater Lake, in Oregon	May 22, 1902	159,360.00
Wind Cave, in South Dakota	Jan. 9, 1903	10,522.00
Sullys Hill, in North Dakota	Apr. 27, 1904	780.00
Platt, in Oklahoma	July 1, 1902 Apr. 21, 1904	848.22
Casa Grande Ruin, in Arizona	Mar. 2, 1889	480.00
Mesa Verde, in Colorado	June 29, 1906	42,376.00
(Five-mile strip for protection of ruins)	do	175,360.00
Hot Springs Reservation, in Arkansas	June 16, 1880	911.63
Glacier, in Montana	May 11, 1910	981.681.00
Total		4,606,158.85

The interest of the public in the parks has been greatly augmented of recent years, as is evidenced by the increased amount of travel thereto and the many demands for literature relating to these reservations. The interest in these national parks is not confined to the people of the United States, but extends to foreign countries. The Swiss Government, at its request, has been supplied with reports of the superintendents in charge and laws and regulations governing the various national parks. Similar information has been furnished the forestry branch of the department of the interior of Canada; also the Verein Naturschutzpark of Stuttgart, Germany, an association the object of which is the establishment of parks or reservations for the preservation and protection of the game, fauna, and flora of Germany and Austria, to be modeled after the Yellowstone National Park, though on a smaller scale. Information on the subject of the Yellowstone Park in particular has been furnished the superintendent of the New Zealand tourist and health resorts, the United States consul at Sydney, New South Wales, for the information of the secretary of national parks in that country, and the secretary of the Royal Geographic Society of Australasia at Melbourne, Victoria.

In view of the facility of reaching our national parks from the Atlantic and Middle West States, through improved rail connections, and the convenience of travel by tourists through them, which is being rapidly improved, the comment is a natural one, "Why do so many of our American people spend their time and money touring abroad without knowing their own country?" The scenery and natural wonders found in other countries frequented by our people are insignificant compared with that of our great national parks and the mountain ranges in which they are found.

It has been broadly estimated that over $100,000,000 has been spent in some years abroad by American tourists; only a fraction of this amount is spent by Americans in visiting the great American parks and resorts.

One of the advantages of popularizing the national parks by eastern tourists would be the display of greater interest in their improvement by the Congress, in liberal appropriations to increase their accessibility by roads and other establishments for public convenience and pleasure.

The Wind Cave National Park, containing 10,522 acres; Sullys Hill National Park, containing 780 acres, and Platt National Park of 848.22 acres, created by Congress at different times, may be said to be local parks having no sufficient national characteristics to warrant their development as such. The policy should be, in my estimation, to retain none of the national parks heretofore dedicated which will not warrant development as national institutions as distinguished from municipal or state parks or resorts. If it is desired that they be retained for public purposes and so improved, I would recommend that they be conveyed to the States for that purpose.

Respecting Sullys Hill National Park, there is nothing to distinguish it from the surrounding territory. I am of the opinion that it can never be made a park even of state-wide importance. Its only use appears to be for camping grounds for inhabitants of the neighborhood, and it contains no features to attract visitors from remote parts of the country.. It is located on the shore of Devils Lake, has about 2 miles of shore line, and extending back from this shore line is what is known as "Sullys Hill." This is a steep hill, devoid of trees, on which, according to tradition, an engagement occurred between Gen. Alfred Sully and the combined tribes of hostile Indians of the Northwest. This tradition can not be verified, as no engagement occurred at this point between General Sully and hostile Indians. The balance of the area is low and is covered with a growth of cottonwood, willow, and other small trees indigenous to the country. It contains a small lake known as "'Sweet Water Lake," in the southwest corner of the reservation.

The Wind Cave National Park, containing 10,522 acres of land, was created by the act of January 9, 1903 (32 Stat., 765). It is situated in the southeast corner of Custer County, S. Dak., and is rather difficult of access by railroad. The surface presents the same aspect as the surrounding country. Its attractive feature is the cave, which has been explored to an approximate depth of 500 feet and 5 miles in length.

This cave is made up of many miles of galleries branching and reticulating along the joint planes of limestone, with numerous chambers of considerable size, one below the other, and containing varied-colored rocks and formations of many shapes and designs.

The approximate number of visitors to the park during the season of 1910 was 3,387, and the total revenues were $673.25.

Owing to its inaccessibility and the fact that its scenic attractiveness is not sufficient, in all probability, to inspire a greater number of visitors to the park, it should be classed as a local or state park, and can never in any sense of the word become a national park.

If the park should be retained, a sufficient appropriation should be made for necessary buildings for park administration and the accommodation of visitors, it being located 12 miles from the city of Hot Springs.

As to the future of the Platt National Park, I am of the opinion that from an administrative standpoint it will be well to cede it to the State of Oklahoma; in fact, the act of July 1, 1902 (32 Stat., 641, 655), "An act to ratify and confirm an agreement with the Choctaw and Chickasaw tribes of Indians," provided among other things that in the future the lands and improvements in the park should be conveyed by the United States to such territorial or state organization that might exist at the time such conveyance should be made. The act of April 21, 1904 (31 Stat., 220), and joint resolution of June 29, 1906 (34 Stat., 837), created a national park, apparently superseding the legislation above referred to. The only appropriation made for this park was $5,000 carried in the sundry civil bill of June 25, 1910.

Its main feature, and, in fact, the only feature to commend it from a scenic standpoint, is Travertine Creek, which rises at the extreme east end and is formed by the junction of two small streams fed by springs. A number of falls, none of which is over 3 or 4 feet in height, occur between the source of the stream and Central avenue.

There are a number of springs on the reservation, the principal ones being Bromide, Bromide-Sulphur, Black Sulphur, Hillside, Pavilion, Beach, Wilson, and Jericho springs. Antelope and Buffalo springs are nonmineral in character. All artesian wells sunk in the vicinity of the park produce the same character of water.

As regards the national parks which have been created and are capable of development as national institutions, a definite policy for their maintenance, supervision, and improvement should be established, which would enable them to be gradually opened up for the convenience and comfort of tourists and campers and for the careful preservation of their natural features. Complete and comprehensive plans for roads, trails, telegraph and telephone lines, sewer and water systems, hotel accommodations, transportation, and other conveniences should be made for each of the national parks before any large amount of money is expended. The treatment of our national parks, except as regards the Yellowstone, has not had heretofore the benefit of any well-considered or systematic plans. In all of them the road and trail problems for public travel and convenience to enable tourists to obtain the benefits of scenic beauties are primary, but sewage, water, and electric power problems are after all of equal importance.

The patrol of the national parks is also a matter of prime importance in their supervision. The system of maintaining regular troops in the Yellowstone, Yosemite, Sequoia, and General Grant parks has proved entirely satisfactory as a method of patrol. The moral effect of the troops in protecting against malicious mischief and enforcing regulations, and the saving of expense in administration by their use, justify their assignment. I believe, however, that civilian superintendents should have charge of the administrative government of all of the national parks, with military supervision confined to the enforcement of regulations pertaining to public travel and preservation of game and natural curiosities. Outside of the Yellowstone National Park the administration of all of the parks is embarrassed by the fact that they contain within their bounds certain areas of private lands, which should be acquired by the Government, and all private interests, including toll roads, extinguished. The private holdings are as follows: Yosemite National Park, 19,827 acres; Sequoia National Park, 3,716.96 acres; Wind Cave National Park, 160 acres; Crater Lake National Park, 1,337 acres patented land, and

1,121.11 acres unperfected bona fide claims; Mesa Verde National Park, 400 acres patented lands and 480 acres unperfected bona fide claims; Mount Rainier National Park, 18.2 acres patented lands; Glacier National Park, 8,864.40 acres patented lands and 7,803.71 acres unperfected bona fide claims.

In order that creditable progress may be made in each of the national parks, after the development of all necessary plans for road and other construction for the convenience of travel and tourists, liberal appropriations will be required and a departmental organization for administrative purposes perfected, capable of efficient field administration and of careful inspection of all public works and the conduct of concessionaires. It will doubtless be necessary in the accomplishment of these purposes to create a bureau of national parks and resorts, under the supervision of a competent commissioner, with a suitable force of superintendents, supervising engineers, and landscape architects, inspectors, park guards, and other employees.

The creation of such a bureau and the planning under it of a consistent and broadly considered scheme for national parks and resorts to fit the future needs of the United States of America would be in line with the policy under which our first President planned, in 1803, the federal city which now bears his name, without which planning no such civic convenience, beauty, impressiveness, and national dignity as the city of Washington now enjoys would have been possible.

The volume and importance of the work of the supervision of the national parks and resorts under the Secretary of the Interior has passed beyond the stage of satisfactory control by operations carried on with the small force available in the Secretary's office. The table shown in Appendix J gives appropriations for various years for the several parks now under the supervision of the Interior Department, including the revenues received from other sources.

The acts of Congress setting aside the various national parks, except in the cases of the Crater Lake National Park, the Mesa Verde National Park, and the Glacier National Park, authorize the expenditure of the revenues derived therein in the management and protection of the reservation, and in the interest of good administration legislation should be enacted authorizing the use of such revenues in the parks so far as necessary.

The construction of roads in the Yellowstone National Park has been under the direct supervision of the engineers of the War Department, and this work has been done in a creditable and scientific manner. The road construction in the Mount Rainier Park has likewise been under the supervision of the army engineers. The Interior Department should, however, have supervision over the construction and maintenance of park roads with a suitable force of engineers to carry on the work according to the general plan of development. Estimates have been furnished the department by superintendents of several of the parks for the extension of roads and trails, which I have not felt justified in recommending, in view of the lack of well-defined policies and plans for their general development and improvement. Additional road construction is greatly needed in the Yosemite, Sequoia, and General Grant national parks, in California; Mount Rainier National Park, in Washington; Crater Lake National Park, in Oregon; and the Mesa Verde National Park, in Colorado. A carefully planned sewer system is necessary in the Yosemite National Park as well as increased water and electric power facilities.

During the past year a uniform method of accounting relating to concessionaires in all of the parks has been established and a material increase made in the receipts for the privileges enjoyed by them. It is worthy of comment that the receipts for 1910, in round numbers, were $51,000, as against $22,000 in 1909. Private investments by concessionaires outside of transportation facilities are confined principally to the Yellowstone. The hotels, lunch stations, and other structures owned by concessionaires and transportation equipment in the various parks are valued approximately as set out in the following table:

Structures in various parks owned by concessionaires.

Name of park.	Value of hotels, etc.	Value of plant.
Yellowstone National Park:		
Yellowstone Park Hotel Co.—		
6 hotels and 2 lunch stations	$1,183,776.91	$1,210,000.00
Other property	26,223.09	
Yellowstone Park Transportation Co		[a] 615,000.00
Monida and Yellowstone Stage Co		[a] 160,927.78
Wylie Permanent Camping Co		[a] 221,818.18
Hofer Boat Co		[b] 40,577.84
Yosemite National Park (2 hotels owned and leased by Government)		[c] 35,000.00
Mount Rainier National Park:		
Tacoma Eastern R. R. Co.—		
Hotel (buildings and tents)	19,650.67	31,581.91
Other property	12,021.24	

[a] Including buildings, horses, stage equipment, etc.
[b] Including buildings, boats, equipment, etc.
[c] Original cost.

In all of the parks, except the Yellowstone, great difficulty of administration is encountered from the fact that the department has no jurisdiction to punish offenses in violation of its regulations, and I therefore recommend that jurisdiction be given to the department over all offenses, with a provision of suitable penalties for the violation of the regulations of the department, for the protection of game, and to prevent destruction or injury to government property.

In the Mount Rainier, Crater Lake, General Grant, and Wind Cave national parks automobiles have been allowed entrance under license and strict regulations pertaining to travel upon the roads. It is believed that in a measure this privilege may be extended to some of the other national parks without jeopardy to the traveling public.

In some of the national parks mining locations are permitted, but the tendency is to abuse the privilege in order to secure rights which will ultimately have to be bought out by the Government. The department is now exercising the strictest vigilance to prevent speculative locations from ripening into patent or a vested right.

I believe that in the administration of our national parks it may be feasible to use for guides, and possibly for guards in a limited sense, intelligent Indians, and an effort will be made to give them such employment where they can be used to advantage.

The following table shows the number of visitors entering the national parks and resorts during the last five years:

Visitors to national parks, 1906 to 1910.

Name of park.	1906.	1907.	1908.	1909.	1910.
Yellowstone National Park	17,182	16,414	19,542	32,545	19,575
Yosemite National Park	5,414	7,102	8,850	13,182	13,619
Sequoia National Park	700	900	1,251	854	2,407
General Grant National Park	900	1,100	1,773	798	1,178
Mount Rainier National Park	1,786	2,068	3,511	5,968	8,000
Mesa Verde National Park	([a])	([a])	80	165	250
Crater Lake National Park	1,800	2,600	5,275	4,171	5,000
Wind Cave National Park	2,887	2,751	3,171	3,216	3,387
Platt National Park	([a])	28,000	26,000	25,000	[b] 25,000
Sullys Hill National Park	([a])	400	250	190	190
Hot Springs Reservation	([a])	([a])	([a])	([a])	120,143

[a] No record kept.

[b] Estimate.

A table giving the location, date of establishment, area, private land holdings (if any), number of visitors, and special characteristics of the national parks is found in Appendix K

FOREST FIRES IN NATIONAL PARKS.

In nearly all of the national parks, through certain seasons of the year, danger from forest fires requires constant vigilance, and an effort should be made to reduce the chances of loss of timber in the national parks from this destructive agency by a sufficient clearing away of the dead and down timber. The accumulations of dead timber and brush should be destroyed in seasonable weather, except where the timber may have a commercial value. In such cases it should be cut and marketed without injury to the growing timber. Protective zones should be cleared through the parks where roads and trails will not suffice to give easy access to and protection from fires, and railroads running adjacent to parks should be required to provide against fires from locomotives by the use of spark arresters, or by keeping their rights of way free from brush, grass, and other combustible material. The Mariposa Big Tree Grove, adjoining the Yosemite National Park, has been ordered by me to be cleared of dead timber and brush, in order to save the 300 Sequoia giants from destruction by forest fires, which are bound to run over the adjacent logged-off lands in the near future.

During the past season forest fires occurred in the Yellowstone, Yosemite, Sequoia, General Grant, and Mount Rainier national parks, which were extinguished by the force on duty in such reservations. These fires were not serious in character and the damage done was inconsiderable. In the Glacier National Park, Montana, however, the conflagrations were of such magnitude, destroying thousands of feet of timber, that it became necessary, owing to the inability of the department with the limited force in the reservation to cope with the fires, to call upon the War Department for a detail of troops to assist in the extinguishment. Such requests were promptly complied with. The officers and men assigned to the duty rendered excellent service and are entitled to the highest commendation for their effective work.

HETCH HETCHY VALLEY PERMIT.

In February of this year I issued a citation to the mayor and supervisors of the city and county of San Francisco to show cause why the Hetch Hetchy Valley and reservoir site should not be eliminated from the permit theretofore granted to the city on the 11th day of May, 1908, for a water supply for said city and county. A board of army engineers, at my request, was detailed by the Secretary of War, at your instance, as advisory to the Secretary of the Interior in the disposition of this question. Upon considering the application of the city for the extension of time to secure further data, a continuance was granted for this purpose for one year, and the board of engineers was authorized to receive such data as may be furnished by the city to establish its claim for the necessity of the use of the Hetch Hetchy site and to secure such other necessary data as they may deem advisable. An appropriation in the sum of $12,000 was granted by Congress to defray the expenses of this board. The details of this hearing are fully set out in the published proceedings had before the Secretary of the Interior in May, 1910.

The stipulations of the permit provide, among other things, that the Lake Eleanor site shall be developed to its full capacity before beginning the development of the Hetch Hetchy site.

The city's representatives have surveyed a dam site in sec. 3, T. 1 N., R. 19 E., at Lake Eleanor, and have begun to clear and explore for foundations for the dam, the timber on the site having first been appraised by a forest officer of the Department of Agriculture, at the request of the Secretary of the Interior. A camp site and temporary buildings for the laborers were also established. Preliminary surveys of the Lake Eleanor main canal, running from the dam above mentioned to a junction with the Hetch Hetchy main canal, and of the

Cherry Creek diversion canal, running from Cherry Creek, in sec. 8, T. 2 N., R. 19 E., to the Lake Eleanor dam site, were approved by the department on February 25, 1909.

The sum of $13,128.77 has been accepted from the city as payment in full for timber and forest growth in the reservoir space of Lake Eleanor, Tuolumne County, Cal., upon the land under control of the United States to be flooded by the first reservoir level constructed under the grant to the city of May 11, 1908.

PRESERVATION OF AMERICAN ANTIQUITIES.

By an act approved June 8, 1906, entitled "An act for the preservation of American antiquities," the President of the United States is authorized, "in his discretion, to declare by public proclamation historic land marks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon the lands owned or controlled by the Government of the United States to be national monuments." Under such authority the President has created the following monuments:

National monuments administered by Interior Department.

Name.	State.	Date.	Area.
			Acres.
Devils Tower	Wyoming	Sept. 24, 1906	1,152
Montezuma Castle	Arizona	Dec. 8, 1906	160
Petrified Forest	do	do	60,776
El Morro	New Mexico	do	160
Chaco Canyon	do	Mar. 11, 1907	20,629
Muir Woods [a]	California	Jan. 9, 1908	295
Lewis and Clark Cavern	Montana	May 11, 1908	160
Tumacacori	Arizona	Sept. 15, 1908	10
Navajo [b]	do	Mar. 20, 1909	[c] 600
Mukuntuweap	Utah	July 31, 1909	15,840
Shoshone Cavern	Wyoming	Sept. 21, 1909	210
Natural Bridges	Utah	Sept. 25, 1909	[d] 2,740
Gran Quibira	New Mexico	Nov. 1, 1909	160
Sitka	Alaska	Mar. 23, 1910	57
Rainbow Bridge	Utah	May 30, 1910	160

[a] Donated to the United States.

[b] Within an Indian reservation.

[c] Based on 15 known ruins, with a reserved area of 40 acres surrounding each ruin. Exterior limits of tract specified in proclamation contain 918,310 acres.

[d] The second proclamation; the first one, dated April 16, 1908, reserved only 120 acres.

National monuments administered by Department of Agriculture.

Name.	State.	Date.	Area.
			Acres.
Cinder Cone	California	May 6, 1907	5,120
Lassen Peak	do	do	1,280
Gila Cliff Dwellings	New Mexico	Nov. 16, 1907	160
Tonto	Arizona	Dec. 19, 1907	640
Grand Canyon	do	Jan. 11, 1908	806,400
Pinnacles	California	Jan. 16, 1908	2,080
Jewel Cave	South Dakota	Feb. 7, 1908	1,280
Wheeler	Colorado	Dec. 7, 1908	300
Mount Olympus	Washington	Mar. 2, 1909	[a] 480
Oregon Caves	Oregon	July 12, 1909	....

[a] Estimated area.

Paragraph 3 of the uniform rules and regulations promulgated by the Secretaries of the Interior, Agriculture, and War, under date of December 28, 1906, to carry out the general provisions of the "antiquity" act, reads as follows:

> Permits for the excavation of ruins, the excavation of archæological sites, and the gathering of objects of antiquity will be granted, by the respective secretaries having jurisdiction, to reputable museums, universities, colleges, or other recognized scientific or educational institutions, or to their duly authorized agents.

During the year four permits were granted for the examination, excavation, and gathering of specimens in the Aleutian Islands, Alaska; in Santa Clara Indian Reservation, N. Mex.; in Navajo National Monument, Arizona, and San Juan Valley, in the contiguous State of Utah and Territory of Arizona. Two permits were granted for the gathering of samples of silicified wood from the Petrified Forest National Monument, Arizona, and three applications for the latter were denied.

As stated in my last annual report a number of the largest archæological institutions in the country have claimed that the uniform regulations of December 28, 1906, should be amended so as to remove certain restrictions which they regarded as oppressive. This matter is still under consideration in the department.

It is respectfully recommended that the administration and supervision of all of the national monuments be consolidated under one department.

BIRD RESERVES.

No new reserves for the protection of native wild birds were created during the fiscal year. A number of these reservations lie within tracts reserved or set aside for purposes other than the protection of birds, such as reclamation withdrawals and naval reserves, but in all such cases the administration of the bird reservation is made subject to the use of the reservation under the primary and more important segregation. The reservations now existing, which are being administered under the direction of the Biological Survey, Department of Agriculture, are 51 in number. For table of reserves see Appendix L.

HOT SPRINGS RESERVATION, ARKANSAS.

During the past year many changes have been effected in the administration of this reservation, which was created by the act of Congress of April 20, 1832 (4 Stat., 505), the reason for such reservation undoubtedly being a belief then entertained and subsequently confirmed as to the medicinal value of the waters of the springs.

There appears to have been no legislation concerning this reservation until the passage of the act of June 11, 1870 (16 Stat., 149), providing for the settlement of the claims to lands in said reservation; the act of March 3, 1870 (19 Stat., 377), providing for a commission to survey and lay out a portion of said reservation in lots, streets, etc., and reserving from sale Hot Springs Mountain, on which the hot or warm springs are located, and authorizing the appointment of a superintendent; the act of December 16, 1878 (20 Stat., 258), providing for bath-house leases and the maintenance of baths for indigent persons; and thereafter the act of June 16, 1880 (21 Stat., 288), creating the reservation as it now exists.

Two thousand one hundred and thirty-five lots were platted by the Hot Springs commissioners, all of which have been disposed of in the manner provided by law, with the exception of 169.

The tracts known as North Mountain, West Mountain, Sugar Loaf Mountain, and Hot Springs Mountain were forever reserved from sale and dedicated to public use as parks by the act of June 16, 1880. They have an area of 911.63 acres, and are known as the "permanent reservation."

The total number of springs on Hot Springs Mountain is 49, with an approximate flow of 1,000,000 gallons daily, the range of temperature being from 97.2° to 147° F. The waters from these springs, which are highly radio-active in character and world famed for their curative properties, are supplied under leases for various periods to bath houses and hotels.

As a result of the foregoing legislation, most of the lands not permanently reserved by the United States became a part of the city of Hot Springs and passed into private ownership.

At the time of the admission of Arkansas as a State, exclusive jurisdiction over the lands set aside for this reservation was not reserved to the United States, and in consequence the state laws obtained thereover and so remain, except as to a portion of Hot Springs Mountain over which the State a short time ago ceded jurisdiction to the United States. In the latter instance the department prescribes regulations governing its management, and the municipality of Hot Springs, which abuts this reservation, enacts laws for the government thereof. This divided jurisdiction, which is highly undesirable, has resulted in much embarrassment in the administration of affairs on the reservation.

In my judgment a satisfactory local administration of affairs at Hot Springs will never be attained until the Federal Government shall, by cession or otherwise, be vested with supervision over the municipal affairs of the city of Hot Springs.

In 1903 regulations were adopted for the government of the reservation which required, among other things, that physicians desiring to prescribe waters from the springs should be registered, and a board of three competent physicians was appointed to pass upon the qualifications of physicians making application for registration under the rule. Subsequently, in the interest of better administration it was found desirable to increase the membership of the board and make one member thereof a lawyer; and accordingly on April 11, 1910, the old board of medical commissioners was dispensed with and in lieu thereof a federal registration board was created, consisting of four competent physicians, one of whom is the surgeon in charge of the Army and Naval General Hospital at Hot Springs, and the other a lawyer. The terms of office of the members of the board were so fixed that the body as now constituted is a continuing one, each member serving a term of four years.

This board promptly entered upon the discharge of its duties and new rules and regulations were promulgated governing the registration of physicians desiring to prescribe the waters from the Hot Springs Reservation, the rigid enforcement of which has resulted in preventing the registration of a number of physicians.

Several representatives of this department who heretofore had made examinations of the reservation recommended the creation of the position of medical director. On April 20, 1910, I secured the services of Maj. Gen. R. M. O'Reilly, U. S. Army, retired, who made a personal inspection of the reservation and, as a result thereof, on August 1, 1910, I created such position and appointed thereto Dr. Harry M. Hallock, major, U. S. Army, retired. The results accomplished thus far under his supervision have demonstrated the wisdom of the department in the premises. He has full supervision of sanitation, hygiene, and hydrotherapy; full charge of the government bath house and the employees therein, maintains a clinic for the education of bath-house operators and their attendants, and determines the fitness of all attendants, physically and otherwise, for employment in bath houses, both those operated by lessees and the government bath house.

There are 11 bath houses on the permanent reservation and 14 in the city of Hot Springs, with a total tubbage of 592, receiving hot water from the reservation under leases made in pursuance of the act of March 3, 1891 (23 Stat., 842), at a compensation to the Government of $60 per tub per annum. A new form of lease to be granted under the above act has been adopted, and a policy has been inaugurated, which I shall adhere to during my administration of the affairs of this department, of requiring all applicants for renewal of leases, both on and off the reservation, to construct bath houses of a type and at a cost to be determined by the department, representing the most advanced ideas in regard to sanitarium work, having due regard to such rules and regulations respecting hygiene, sanitation, and the prevention of infectious or contagious diseases as the medical director may require. This, I am convinced, will remove a great deal of complaint with respect to the reservation, its untidy appearance, and the poor accommodations of the bath houses on and off the reservation and the utter lack of supervision with respect to hygienic and sanitary measures which has heretofore existed.

A free bath house for the accommodation of indigents has been in operation on the reservation since 1878, commencing with an ordinary box house and pools excavated in the natural tufa rock with mud bottoms, which became widely known as the "Mud Hole." It was enlarged from time to time and under the sundry civil act of June 28, 1902 (32 Stat., 456), wherein an appropriation of $25,000 was made for the remodeling and enlarging the bath house, it was placed in a sanitary condition, and since that time the bathing arrangements have been rearranged and necessary repairs made to the building proper looking to the betterment of its sanitary conditions. The total number of persons bathed during the year was 200,048, an average of approximately 560 persons daily.

The present bath house is frequently overcrowded, and the building has deteriorated to such an extent that it will be necessary within a short time to make further repairs or enlargement, or to erect a new and modern bath house. To do this and to make other necessary improvements around the reservation, I have determined to sell during the spring of 1911 a part, if not all, of the 169 lots in the city of Hot Springs, title to which still remains in the Government.

For many years past a practice has obtained among the doctors and hotel proprietors in Hot Springs of drumming for custom. This has grown to such proportions that many persons needing the benefits of the waters from the Hot Springs have remained away rather than subject themselves to the unscrupulous practices of physicians and hotel drummers. During the past year, however, the department has adopted such regulations and put into effect new administrative methods which have in a great measure rendered such drumming practices unprofitable to those engaged therein, and it is believed that in the near future the practice will be wholly eradicated.

The balance of the Hot Springs revenues on July 1, 1909, aggregated	$29,217.29
Receipts during the year	36,540.00
	65,757.29
The expenditures, including salaries, repairs, improvements, incidentals, and miscellaneous supplies aggregated	28,401.97
The available balance of the Hot Springs fund July 1, 1910, amounted to	37,355.32

By the sundry civil act approved March 3, 1901 (31 Stat., 1188), the Secretary of the Interior was directed to determine the value of certain condemned buildings formerly located on the Hot Springs Mountain Reservation, which were destroyed by fire on the night of

March 5, 1877, and to pay the amount of claims found due in connection therewith, reporting to Congress his action in the premises. Thirty-two claims have been presented under the act, of which 19 have been allowed, aggregating in value $48,257.52; 2 claims have been rejected and 11 are under consideration.

TERRITORIES.

For the purpose of centralizing information regarding the Territories, and, in so far as the law permits, to place their administration under the Department of the Interior, an order was issued by the President May 11, 1907, and subsequently amended to read as follows:

> It is hereby ordered that on and after May 1, 1909, all official communications or reports from and to executive officers of the Territories and territorial possessions of the United States, viz, Arizona, Hawaii, New Mexico, Porto Rico, Alaska, Samoa, and Guam, and all official communications or reports relating to territorial matters from and to all executive officers of the United States stationed in such Territories and territorial possessions, shall be transmitted directly to the heads of the departments of the Government as provided by law, and in all cases where the acts of Congress do not specifically designate the department to which reports shall be transmitted, the same shall be forwarded to the Secretary of the Interior in such manner and under such regulations as he may prescribe.

By executive order dated July 15, 1909, Porto Rico was transferred to the Insular Bureau of the War Department.

ALASKA.

The total value of merchandise shipped from the United States to Alaska during the fiscal year was $17,972,647, an increase of $786,202 over the preceding year. The aggregate value of exports to the United States was $34,628,535, an increase of $293,100 over the preceding year.

Gold mining continues to be the most important industry, the value of the gold produced during the year 1909 amounting to $20,463,000, exceeding all previous years, except 1906. The production of copper amounted to 4,124,705 pounds. Coal is widely distributed throughout the district, but up to the present time there has been practically no production and no patents for coal lands have been issued. Coal to the value of $208,359 was imported from the United States, and coal to the value of $356,435 was imported from foreign countries during the year. Extensive industrial progress in Alaska will be impossible without cheap fuel and improved transportation, the latter depending largely upon a supply of the former. The importance of opening the vast coal fields of Alaska to development under some plan which will prevent waste and monopoly can not be overestimated. Suggestions with reference to legislation along this line are made in another portion of this report.

Next to mining the most important industry of Alaska is the canning of salmon, the exports to the United States for the year amounting to $9,434,946. The pack during the year amounted to about 2,375,000 cases of 4 dozen 1-pound cans each.

The white and mixed-blood schools have been successfully administered by the governor. A compulsory school law for both whites and natives in Alaska is recommended, as well as the amendment of the act of June 27, 1905, so as to authorize the establishment of schools in districts where there are as many as 15 pupils. The available funds for the construction of wagon roads and trails have been found too small to meet the popular demand for more roads, but the construction work, as well as the maintenance and improvement of existing roads, has been carried on steadily. The extension of transportation facilities to localities susceptible of mineral and agricultural development is exceedingly important, and I recommend a continuance of the appropriation for the building of wagon roads and trails.

The presence of infectious diseases is a menace both to the native and white population of Alaska, and the enactment of a quarantine law for that district, with provision for its enforcement, is recommended. A law requiring the registration of births, marriages, and deaths in the Territory should also be enacted.

In June, 1910, the Interstate Commerce Commission held that the District of Alaska is not a Territory of the United States within the meaning of that phrase as used in the act to regulate commerce, as amended, and that therefore the commission is without authority or jurisdiction over carriers engaged in the transportation of passengers or property within Alaska. In view of this ruling it became necessary for this department to assume jurisdiction of the subject under the provisions of the act of May 14, 1898 (30 Stat., 409), and steps have been taken designed to secure uniform administration and the best results possible under the circumstances. I think the best results would be attained, however, by putting this matter within the jurisdiction of the Interstate Commerce Commission, and I recommend the enactment of a law giving that body jurisdiction over carriers engaged in the transportation of passengers or property within the District of Alaska.

The importance of the extension of the public-land surveys to the agricultural areas of Alaska was recognized by Congress at its last session in the appropriation of $100,000 for this purpose. The work of executing surveys has been intrusted to the Geological Survey under plans approved by the Commissioner of the General Land Office, and as soon as the appropriation became available three parties were organized and began work in the Fairbanks district July 23, continuing until the end of October. Twenty-four miles of prime meridian lines, 18 miles of base lines, and 46 miles of township exteriors were run. In addition, 10 miles of section lines and 9 miles of meander were surveyed. The triangulation necessary to check this work and to extend it included the occupation of 27 triangulation stations and the location of 33 secondary and intersected points. This system of triangulation has been so planned as to make it available for the extension of needed land surveys. All the surveys are tied to the latitude and longitude station of the Coast and Geodetic Survey at Fairbanks. Preliminary reconnaissances were made in Copper River basin and the Knik Arm region. By arrangement with the Superintendent of the Coast and Geodetic Survey, a party was detailed from that bureau to make the latitude, longitude, and azimuth determination at the initial point. The coast survey party also determined the position of another station at the mouth of the Tanana River, which will be used as a reference point for future land surveys.

It is believed that these surveys will result in the homesteading and cultivation of considerable land, thereby furnishing much needed agricultural products to the mining and commercial centers of the District. Alaska contains an estimated agricultural and grazing area of from 40,000 to 45,000 square miles, and the survey of this Territory should be pushed to completion as rapidly as possible.

The investigation of the mineral and water resources as well as the geologic and typographic work was continued by the Geological Survey during the past year, and a special geologic investigation was made in the Bering River coal field.

ARIZONA.

The report of the governor of Arizona for the year 1910 indicates a steady growth in population, particularly upon irrigated farm lands, and the year appears to have been a prosperous one in the Territory, which condition should continue and be increased as the result of its admission to the Union. The finances of the Territory are in good condition, the revenues for the year being $1,121,381.48, an increase of $205,891.28 over the previous year. The balance on hand in the territorial treasury at the end of the year was $507,721.97, an increase over the previous year of $145,277.74. The net decrease in all expenditures over the previous year was $13,266.74, while the decrease in expenditures for purposes for which actual appropriations were made was $103,123.16. The decrease was largely due to more economical management of territorial institutions. The bonded indebtedness of the Territory was reduced $43,000 during the year. The assessed valuation of taxable property shows an increase over the previous year of $3,442,163.79. The tax rate was lowered by the board of equalization from 80 cents to 70 cents per $100 of assessed values.

The output of the mines during the year 1909 exceeded that of the previous year. There were produced 297,702,940 pounds of copper, 132,278.849 ounces of gold, 2,347,709,315 ounces of silver, 2,153,102 pounds of lead, 6,053,145 pounds of zinc, 3,325,347 pounds of iron, and 599,010 pounds of sulphur. The total value of these mineral products was $42,946,745.19.

The appropriations made by the last territorial legislature for territorial expenses will lapse June 30, 1911, and should the admission of the Territory for any reason be delayed beyond that time, action by Congress will be necessary. The governor recommends that Congress provide for this contingency by authorizing the levy of taxes for the payment of territorial expenses for the fiscal years 1912 and 1913, and directing such appropriations to be made as may be necessary for that purpose.

NEW MEXICO.

The annual report of the governor of New Mexico indicates material progress in that Territory during the past year, and it is to be hoped that a period of increasing prosperity and of industrial and agricultural development will follow the admission of New Mexico to the Union. The finances of the Territory are in excellent condition, all appropriations having been promptly paid. During the last year the territorial rate of taxation has been reduced from 14.45 mills to 11 mills, a reduction of nearly 24 per cent. On June 1, 1910, the net bonded indebtedness was $991,500. The balance on hand in the territorial treasury on June 1, 1910, was $485,149.14. The territorial cash balances are deposited in approved depositaries, protected by bonds, and draw interest at the rate of 3 per cent per annum on daily balances.

The agricultural development of New Mexico is progressing rapidly, nearly 1,000,000 acres being now under cultivation. With the development of irrigation projects, public and private, and a better knowledge of the essential principles of dry farming, an immense increase in the production of agricultural products and fruits should follow. The gross production of coal for the year was 3,293,486.41 tons, and a total value of the coke and coal shipped during the year amounted to $4,693,870.53. The number employed at the mines was 2,861, and the percentage of fatalities fell from 0.556 in the preceding year to 0.489 in the past year.

The value of public school property is about $1,000,000 and the bonded indebtedness $600,000. The territorial expenditure for the support of public schools during the past year was $791,000, and the enrollment was 56,162, an increase of 8,173 over the preceding year. Greater attention has been given than ever before to supervision and improvement of the rural schools, with the result that the school attendance has been larger, the terms longer, and better sanitary conditions have obtained. Attention is directed to the recommendation of the governor for the amendment of the act granting lands to the Territory for the support of public schools and other educational institutions, and recommending that it be amended so as to permit the sale of these lands in tracts not exceeding 640 acres to an individual. If such an amendment be made, it should provide for a classification of the lands and for the sale of a maximum acreage according to the character and productivity of the lands.

HAWAII.

The act of Congress approved May 27, 1910, made many important changes in the land laws of the Territory and in the simplification of their administration. The act also contains other provisions beneficial to the administration of territorial affairs.

There is a lack of proper facilities for passenger travel between Hawaii and the mainland, due in part to the fact that the through steamers making Honolulu a port of call are generally in foreign ownership and can not under the navigation laws transport passengers between the Territory and the mainland. Relief should be accorded through the suspension of the navigation laws for a limited period so far as they relate to such travel, or in some other way which will add to the opportunities for transportation of passengers. Appropriations are needed for continuing the work upon Honolulu, Hilo, and Kahului harbors, for beginning work on some harbor on the island of Kauai, and for the public buildings heretofore authorized at Honolulu and Hilo.

The Territory consists of eight principal islands having an aggregate area of 6,640 square miles. Besides the general ten years' census there were made during the last fiscal year the five-year labor investigation required by law, and at the same time and under the same direction a military census of the Territory and a social census of the city of Honolulu. The results of these are not yet available, except the figures for the entire population by races founded upon a preliminary count, which is subject to correction. The population of the Territory thus found is 191,905, an increase of 16,905 over the previous year. The population by races is as follows: Hawaiians, 26,108; part Hawaiians, 11,912; Chinese, 21,666; Japanese, 79,520; Portuguese, 22,701; Spaniards, 2,031; Porto Ricans, 4,896; blacks and mulattoes, 625; Caucasians, 14,409; and all others consist largely of Koreans and Filipinos, 8,037. The population of Honolulu is estimated to be about 50,000. During the last fiscal year settlers and tourists from the mainland have come in in increased numbers, and 1,790 Russians and 868 Portuguese immigrants were introduced by the bureau of immigration, and 2,651 Filipinos by the sugar planters.

Imports and exports for the year aggregated $75,624,659, an increase of $9,687,175 over the preceding year. The imports were $25,138,247, an increase of $3,713,267, and the exports $46,486,412, an increase of $5,964.908. The imports and exports for the first year of the territorial government were $30,880,478, the inward tonnage for the year was 1,308,801 tons, an increase of 149,683 tons, and the outgoing tonnage was nearly as much. The custom receipts which go into the federal treasury were $1,575,319.15, an increase of $178,939.25. The federal internal revenue receipts were $209,132.51, an increase of $130,024.52, of which $124,201.18 was the corporation tax. The assessed value of the property was $150,268,467, an increase of $11,357,647 for the year. At the close of the year bank deposits amounted to $13,324,305.54, an increase of $3,666,486.33.

Current receipts for the year were $3,641,245.35, an increase of $589,718.54 over the previous year. Disbursements, including payments to counties, were $3,264,364.20, an increase of $329,380.10. The receipts exceeded the disbursements by $260,338.04. The net cash balance at the close of the year after deducting all outstanding warrants was $698,970.96. Bonds bearing 4 per cent interest were paid to the amount of $80,000, and public improvement 3½ per cent bonds were issued to the amount of $200,000. The bonded indebtedness of the Territory at the close of the fiscal year was $4,079,000, which is 2.71 per cent of the aggregate assessed value of the property of the Territory.

GUAM AND SAMOA.

The naval officers who act as governors of Guam and Samoa, respectively, have submitted their reports to the Secretary of the Navy, as required by law.

GENERAL EDUCATION BOARD.

This corporation, which was created by the act of Congress approved January 12, 1903, section 6 of which requires the corporation to annually file with the Secretary of the Interior a report, in writing, stating in detail the property, real and personal, held by the corporation, and the expenditure or other use or disposition of the same, or the income thereof during the preceding year, has for its object the promotion of education within the United States. The corporation owns no real estate, its property consisting of securities and money divided into various funds, according to the purpose for which it is to be used.

On June 30, 1910, the capital amounted to $39,905,550, invested as follows: Bonds, $28,937,500; stocks, $10,968,050.

The moneys received under the general-income account during the year amounted to $4,399,680.97, of which $2,642,444.34 represented balance from previous year. The disbursements, consisting of gifts to a large number of educational institutions, amounted to $772,736.65, the sum of $2,708,577.54 was invested in securities, administrative expenses amounted to $23,425.90, and the cash on hand at the close of the year was $894,683.16.

There is a special fund, known as the Anna T. Jeans fund, for negro rural schools, amounting to $200,000. The income during the year, including a balance of $1,198.15 from the preceding year, amounted to $10,092.35; $5,587.65 was distributed to various beneficiaries, leaving a balance at the end of the year of $4,504.70.

HOWARD UNIVERSITY.

Howard University was incorporated by the act of March 2, 1867 (14 Stat., 338). The purpose of the incorporation named in the first section of the act was "for the education of youth in the liberal arts and sciences." The incorporators were declared to be "a body politic and corporate, with perpetual succession," etc. Control was vested in a board of 17 trustees.

The incorporators and their successors were authorized to take for the university, property of any character "by gift, devise, grant, donation, bargain, sale, conveyance, assurance, or sale;" also to transfer or lease any of the property of the university and to place at interest, in such manner as the majority of the incorporators or their successors should decide, any money belonging to the university, and with the general powers usually conferred on corporations, with reference to the right to sue and be sued in any courts, in actions of any character. Congress reserved the right to alter, amend, or repeal the act of incorporation.

The enrollment for the past year was 1,252. The scope of influence of the institution may be judged from the fact that these students came from 35 States and 12 foreign countries; from Porto Rico, 8; Africa, 4; British West Indies, 85; Cuba, 7; Republic of Panama, 3; South America, 3; Liberia, 2; British Guiana, 5; and from Dutch Guiana, India, and San Domingo, 1 each.

The past year has been one of unusual expansion and growth. The Carnegie Library was dedicated in April last; the new Science Hall has been built and equipped, at a cost of $90,000; a new central vacuum heating system, electric light and power plant, is now being installed, and work on the new Hall of Manual Arts will begin at an early date.

The School of Theology receives no aid from Congress, but is supported through endowments and special gifts. It requires no doctrinal tests, is interdenominational, and is open for all who are preparing for greater efficiency in moral and religious work.

Although the university was established in 1867, Congress made no appropriation for its support until March 3, 1879, when $10,000 was appropriated "for maintenance."

From 1879 to June 30, 1910, Congress has appropriated in the aggregate for this institution $1,217,700, divided as follows: For maintenance, etc., $837,300; for scientific building and equipment, $90,000; for addition to the manual-training building, $23,000; and for tools, books, improvement of grounds and buildings, equipment of different departments, chemical apparatus, fuel and light, etc., $267,400.

The only buildings which have been erected from an appropriation made by Congress are the scientific building and the addition to the manual-training building, but for many years separate appropriations were made for the repairs of buildings and for the improvement of grounds. In recent years the two items have been combined.

A report of the treasurer of the university, made to this department on May 28, 1910, shows that the total value of all the property belonging to the university was $1,606,348.05 on April 30, 1910, of which $384,980.10 was endowments. The difference between the total amount appropriated by Congress and the total value of all the property of the university on April 30 last is $388,648.05, and the difference between this amount and the total endowment, $384,980.10, is but $3,667.95; consequently the plant as it now stands is only worth $3,667.95 above the aggregate of the endowment and the amount appropriated by Congress.

Under existing law this department has no representative on the board of trustees; although it has for several years given administrative examination to the accounts of the special disbursing officer handling the appropriations made by Congress for the institution, nor has the Government any title to the buildings erected or improvements made to buildings from congressional appropriations.

It is respectfully recommended that the act of incorporation of March 2, 1867, be so amended as to give the Government a proper representation on the board of trustees, that appropriations made by Congress shall be expended under the supervision and direction of the Secretary of the Interior, and that the institution be required to secure to the United States, in such manner as Congress may deem appropriate, under all the circumstances, the title to the lands upon which buildings have heretofore or may hereafter be erected from funds provided by the Government.

FREEDMEN'S HOSPITAL.

There were 2,869 indoor patients treated in this institution during the year, an increase of 148 over the preceding year. One thousand nine hundred and thirty-one cases were received from the District of Columbia and 561 from various States. Two thousand seven hundred and fifteen were discharged, of whom 1,128 recovered, 1,109 improved, 236 were unimproved, 8 were not treated, and 237 died. The number of patients remaining in the hospital at the close of the year was 154. Of the deaths reported, 56 were beyond medical and surgical aid when received. The surgical work has been very heavy during the past year, involving 1,482 operations. In the out-patient department, 3,726 were treated, an increase of 368 over last year.

The account with the Board of Charities of the District of Columbia shows an unpaid balance of $61,866.35, which amount would be sufficient to provide a building in which to properly house the hospital nurses and provide other accommodations urgently needed by the hospital. It is hoped that the Commissioners of the District may see their way clear to include in future estimates to Congress a sum sufficient to cover the contract price for the care of all patients who have been admitted to the hospital as residents of the District of Columbia. The bill rendered during the past year for the care and treatment of this class of patients amounted to $41,640.85, or $16,140.86 more than the appropriation received for this purpose.

Experience having demonstrated that the heating plant at the hospital was not of sufficient capacity to adequately provide for the needs thereof as well as the Howard University, it was deemed best to increase the efficiency of the plant by the use of the vacuum system on steam-heating lines and thereby produce better results and reduce the cost of maintenance. The electric current supplied by a private corporation to the hospital was unsatisfactory in price as well as in service, and in the interest of economy it was believed that the necessary machinery should be provided and installed so that the electric current needed could be generated on the hospital grounds, thereby securing good service and reducing the cost to a minimum. An estimate was accordingly submitted to Congress in the sum of $80,000 for the remodeling of the central heating plant of the Howard University and Freedmen's Hospital and the installation of electrical generating machinery for power and light at those institutions. An appropriation in that amount was made in the sundry civil act approved June 25, 1910, plans and specifications for the various parts of the plant were prepared, contracts were let, and the work is now well under way.

DISTRICT OF COLUMBIA CORPORATIONS.

The act of May 17, 1862 (12 Stat., 389), required the Washington and Georgetown Railroad Company (Capital Traction Company, successor) to "lay upon the lines of its road rails of the most approved pattern, to be determined by the Secretary of the Interior."

The act of Congress approved May 24, 1870 (16 Stat., 136), incorporating the Columbia Railway Company, provided for the submission of yearly reports to Congress or the Secretary of the Interior. The property and franchise of this road have been transferred to the Washington Railway and Electric Company, report by which is submitted directly to Congress.

The act of Congress approved June 23, 1874 (18 Stat., 277), required the Washington Gas-Light Company to annually furnish the Secretary of the Interior with a statement of all its coal contracts or purchases for the ensuing year, excepting the Ritchie mineral and the Richmond coal. The act of March 3, 1903 (32 Stat., 959), provided for the appointment of an inspector of gas and meters by the Commissioners of the District of Columbia. The Washington Gas-Light Company has no connection whatever with this department other than to render the report hereinbefore specified.

In my last annual report it was recommended that so much of the several acts as imposed duties on the Secretary of the Interior be repealed or so modified as to impose the duties prescribed by the acts upon the Commissioners of the District of Columbia and to provide that the reports required be made directly to Congress.

Subsequently the question as to the necessity for such legislation was submitted to the Attorney-General, who, under date of February 23, 1910, held that under existing laws the Secretary of the Interior was relieved from the duties above enumerated in connection with such corporations.

THE SUPERINTENDENT OF THE UNITED STATES CAPITOL BUILDING AND GROUNDS.

The work carried on by the superintendent in connection with improvements at the Capitol and the completion of the Senate and House Office buildings has been very satisfactory.

Two new passenger elevators have been installed in the Senate wing, and marble floors have been laid in the Senate lobbies and the restaurant. Changes and improvements, consisting of remodeling the wall between the private rooms of the Senators and the installation of new counters, furniture, and ice box and dumb-waiter, have been made in the Senate restaurant. New cables have been put on 14 elevators, and the plumbing throughout the building repaired and several lavatories installed. The work has been continued on the approaches and basement rooms of the Senate and House Office buildings, and the construction of the heating, lighting, and power plant has so far progressed as to warrant a trial test in lighting the Capitol, Congressional Library, Senate and House Office buildings at an early date.

Improvements and repairs have been carried on at the court-house, Court of Claims building, and the engine house of the Senate and House stables.

The new court of appeals building on Judiciary Square has been completed, and was occupied for the first time at the October term of court, at an expenditure of $211,500.

The following amounts have been expended during the fiscal year ended June 30, 1910:

Repairs to the Capitol building	$47,041.05
Additional elevators in the Senate wing	26,000.00
Senate kitchen and restaurant	5,000.00
Lighting Capitol grounds, etc	104,500.00
Capitol grounds	27,500.00
Engine house of the Senate and House stables	1,500.00
Court-house	5,168.80
Court of Claims building	8,486.00

GOVERNMENT HOSPITAL FOR THE INSANE.

On June 30, 1910, there remained in the hospital 2,916 patients, as against 2,852 remaining on June 30, 1909, an increase of 64 over the previous year. During the year there were admitted 650 patients, an increase of 41 over the year 1909. The number of admissions added to the number remaining on June 30, 1909, makes a total of 3,502 patients under treatment during the last fiscal year, being an increase of 76 over the previous year. Of the total number of patients admitted, 159 were from civil life, 244 from the army and navy, and 8 from the Public Health and Marine-Hospital Service.

It is ten years since Congress appropriated any money for the erection of buidings for the housing of patients and employees. Since the last appropriation for this purpose was made, there has been an increase in the patient population of the hospital of over 800, which necessarily means a corresponding increase in the employee population, and yet during this period there has been practically no provision made for taking care of the increase. At the time of the last appropriation for the erection of additional buildings the institution was in an overcrowded condition, and the 1,000 beds provided by that extension have long since been occupied. In this connection, at the last session of Congress I submitted an estimate of appropriation in the sum of $12,500 for the expenses of a commission to examine into the laws relating to the commitment of insane to the government hospital and to ascertain whether additional accommodations are required at that institution, which recommendation has been renewed in the estimates for the year 1912. It is believed that a revision of the laws relating to the commitment of the insane to the government hospital could very properly reduce the number of patients received, and would materially lessen the congestion and necessity for additional structures.

The land for the use of the hospital is not sufficient for its present needs, and considering the rapid increase in patients it is evident that more land must be acquired within the near future, and the superintendent estimates that at least 100 acres are needed.

An addition to the new power, heating, and lighting plant has been completed; four 300-horsepower boilers have been installed, which are now in working order.

Sixteen nurses, 13 women and 3 men, graduated from the training school during the year; 30 undergraduates, 20 women and 10 men, successfully passed the examination. The junior class of the last fiscal year is the largest in the history of the hospital, and the course of instruction has been extended to include additional practical work.

COLUMBIA INSTITUTION FOR THE DEAF AND DUMB.

An advanced course of instruction was put into effect, beginning in the latter part of 1909, since which time a number of state institutions for the deaf advanced their standards to correspond thereto.

On presentation day, May 4, 1910, there were presented 1 candidate for the degree of bachelor of letters, 2 for the degree of bachelor of science, 10 for the degree of bachelor of arts, 4 for the degree of master of arts, and 1 for a certificate.

The receipts for the maintenance of the institution for the year were $81,730.87, and the expenditures were $81,324.10, leaving a balance of $406.77. Five thousand dollars was received and expended for special repairs.

A part of the men's dormitory was destroyed by fire. Repairs are being made from an appropriation of $25,000, granted in the general deficiency bill.

It is respectfully recommended that it would be more appropriate to have the supervision of this institution transferred to the District of Columbia.

MARYLAND SCHOOL FOR THE BLIND.

Section 2 of the act of Congress approved May 29, 1858 (11 Stat., 294), authorizes the Secretary of the Interior to place for instruction in an institution for the blind, in the State of Maryland or some other State, the indigent blind children of teachable age who are children of persons actualy engaged in the military and naval service of the United States, and under section 4869, Revised Statutes of the United States, the blind children of teachable age belonging to the District of Columbia.

The act of May 26, 1908 (35 Stat., 295), making appropriations for the District of Columbia, provided that after July 1, 1908, a contract should be entered into by the Commissioners of the District of Columbia for the instruction, in Maryland or some other State, of indigent blind children of the District, appropriated $6,000 for the purpose, and repealed the permanent indefinite appropriation under section 3689 of the Revised Statutes. Inasmuch as the Secretary of the Interior, by section 2 of the act of May 29, 1858 (11 Stat., 293), was also charged with providing for the instruction of the blind children of all persons in the military and naval service of the United States while such persons are actually in such service, the expense to be defrayed from the permanent indefinite appropriation above referred to, the question was submitted to the Comptroller of the Treasury as to whether that appropriation was repealed so far as to be no longer available for the instruction of this class of beneficiaries. In an opinion rendered October 27, 1908, the Comptroller of the Treasury held that the act of May 26, 1908, supra, only repealed the provisions of section 3489 of the Revised Statutes to the extent that said section provides for the education of the blind children of the District of Columbia, and that the permanent indefinite appropriation in question is still available for instructing the blind children of all persons in the military and naval service of the United States, in some institution in Maryland or some other State, and that the Secretary of the Interior is authorized to continue to issue permits for the instruction of such children.

No permits for this class of beneficiaries were issued during the past year.

It is respectfully recommended that it would be more appropriate to have the supervision of this institution transferred to the District of Columbia.

I respectfully refer to the annual reports of the chiefs of the various bureaus and other officers of this department for detailed information.

Very respectfully, RICHARD A. BALLINGER,
Secretary.

The PRESIDENT.

APPENDIX A.

Rent of buildings, Interior Department, fiscal years, 1906–1910.

1906.

Building northwest corner Eighth and E NW., Civil Service Commission	$4,500	
Building northeast corner Eighth and G NW., Bureau of Education	4,000	
Building 1328 F street NW., and annexes, Geological Survey	33,400	
Union Building, 3 floors, G street between Sixth and Seventh NW., Patent Office models	19,500	
Union Building, south half basement, storage of documents	800	
Citizen's National Bank Building, Fifteenth street NW., United States pension agency	2,500	
		$64,700

1907.

Building northwest corner Eighth and E NW., Civil Service Commission	4,500	
Building northeast corner Eighth and G NW., Bureau of Education	4,000	
Building 1328 F street NW., and annexes, Geological Survey	34,900	
Union Building, 3 floors, G street between Sixth and Seventh NW., Patent Office models	10,000	
Union Building, south half basement, storage of documents	800	
Munsey Building, E street NW., 24 rooms, Reclamation Service	5,000	
Ouray Building, northwest corner Eighth and G NW., 11 rooms, Land Office	3,240	
		62,440

1908.

Building northwest corner Eighth and E NW., Civil Service Commission	4,500	
Building northeast corner Eighth and G NW., Bureau of Education	4,000	
Building 1328 F street NW., and annexes, Geological Survey	34,900	
Union Building, south half basement, storage of documents	800	
Ouray Building, northwest corner Eighth and G NW., 11 rooms, Land Office	3,240	
Building northwest corner Twelfth and G streets NW., Reclamation Service	8,000	
Union Building, 3 floors, G street between Sixth and Seventh NW., Patent Office models	19,500	
		74,940

1909.

Building northwest corner Eighth and E NW., Civil Service Commission	4,500	
Building northeast corner Eighth and G NW., Bureau of Education	4,000	
Building 1328 F street NW., and annexes, Geological Survey	34,900	
Union Building, 3 floors, 5 months, Patent Office models	8,125	
Union Building, south half basement, storage of documents	800	
Building northwest corner Twelfth and G streets, Reclamation Service	8,000	
		60,325

1910.

Building northwest corner Eighth and E NW., Civil Service Commission	4,500	
Lincoln Hall (part of) Ninth and D NW., Civil Service Commission	2,000	
Building 1328 F street NW., and annexes, Geological Survey	34,400	
Building northwest corner Twelfth and G NW., Reclamation Service	8,000	
Union Building, south half basement, 9 months, storage of documents	1,000	
United States Storage Company, Tenth street, NW., Patent Office models	3,000	
Rooms Munsey Building, Geological Survey	3,000	
		55,900
Grand total		318,305

APPENDIX B.

Total appropriations made for the Department of the Interior, bureaus and offices, regular and deficiency, fiscal years 1906–1910.

Titles.	Regular	Deficiency.	Total.
1906.			
Salaries and expenses	$5,150,174.00	$15,578.93	$5,165,752.93
Salaries and contingent, public land service	173.365.00	519.95	173,884.95
Indian affairs	8,129,312.45	5,472,944.85	13,602,257.30
Pensions	138,250,100.00	3,500,606.15	141,750,706.15
Public works	2.405,350.00	....	2,405,350.00
Miscellaneous	3,591,163.15	189,444.78	3,780,607.93
	157,699,464.60	9,179,094.66	166,878,559.26
1907.			
Salaries and expenses	5,137,659.00	16,300.00	5,153,959.00
Salaries and contingent, public land offices	193,575.00	....	193,575.00
Indian affairs	9,405,199.98	159,167.37	9,564,367.35
Pensions	140,245,500.00	1,000,063.00	141,245,563.00
Public works	1,667,500.00	2,700.00	1,667,527.00
Miscellaneous	3,613,477.50	64,229.99	3,677,707.49
	160,262,911.48	1,239,787.36	161,502,698.84
1908.			
Salaries and expenses	5,065,074.00	10.69	5,065,084.69
Salaries and contingent, public land offices	188,705.00	9.26	188,714.26
Indian affairs	10,305,216.63	1,316,922.89	11,622,139.52
Pensions	146,143,000.00	10,000,298.58	156,143,298.58
Public works	3,625,965.00	26,675.08	3,652,640.08
Miscellaneous	4,751,038.00	315,247.97	5,066,285.97
	170,078,998.63	11,659,164.47	181,738,163.10

Total appropriations made for the Department of the Interior, etc.—Continued.

Titles.	Regular.	Deficiency.	Total.
1909.			
Salaries and expenses	$4,898,530.00	$471.56	$4,899,001.56
Salaries and contingent, public land offices	192,025.00	....	192,025.00
Indian affairs	10,070,782.76	107,759.20	10,178,541.96
Pensions	163,053,000.00	173.00	163,053,173.00
Public works	2,099,392.16	258,944.45	2,358,336.61
Miscellaneous	4,369,851.00	217,310.84	4,587,161.84
	184,683,580.92	584,659.05	185,268,239.97
1910.			
Salaries and expenses	4,905,970.00	11,408.16	4,917,378.16
Salaries and contingent, public land offices	182,225.00	10.18	182,235.18
Indian affairs	11,868,159.20	868,084.82	12,736,244.02
Pensions	160,908,414.00	24.00	160,908,438.00
Public works	514,300.00	318,892.31	833,192.31
Miscellaneous	4,681,860.00	260,820.40	4,942,680.40
	183,060,928.20	1,459,239.87	184,520,168.07

RECAPITULATION.

Appropriated—Regular and deficiency:	
1906	$166,878,559.26
1907	161,502,698.84
1908	181,738,163.10
1909	185,268,239.97
1910	184,520,168.07
Total	879,907,829.24

APPENDIX C.

TABLE 1.—*Receipts and expenditures of the General Land Office, years 1906 to 1910.*

Fiscal year ended June 30—	Receipts.	Expenditures.	Surplus.
1906	$7,585,523.90	$1,690,641.20	$5,894,882.70
1907	11,553,178.00	2,295,004.70	9,258,173.30
1908	12,715,709.46	2,381,359.79	10,334,349.67
1909	11,900,249.78	2,721,489.99	9,178,759.79
1910	11,463,924.06	3,179,363.49	8,284,560.57

TABLE 2.—*Receipts and expenditures of the Patent Office, fiscal years 1906–1910.*

Year.	Receipts.	Expenditures.	Surplus.
1906	$1,811,297.84	$1,538,149.40	$273,148.44
1907	1,859,592.89	1,584,489.70	275,103.19
1908	1,874,180.75	1,608,292.01	265,888.74
1909	1,975,919.97	1,887,443.35	88,486.62
1910	2,022,043.26	1,953,549.76	68,493.50

APPENDIX D.

Number of employees and distribution as to employment November 1, 1910, by bureaus, offices, hospitals, reservations, etc.

Place of employment.	Total.	Office of Secretary.	Office of Assistant Attorney-General.	General Land Office.	Office of Indian Affairs.	Patent Office.	Pension Office.	Bureau of Education.	Geological Survey.	Reclamation Service.	Bureau of Mines.	Hospitals.	Parks and reservations.	Territorial and District of Columbia.	Office of Superintendent of Capitol.
Total	14,262	307	23	1,487	5,705	934	1,579	178	1,063	1,745	198	909	86	26	22
Alabama	5			3			1				1				
Alaska	144			24				119						1	
Arizona	845			34	543					258				10	
Arkansas	65			23			2						40		
California	436			74	304		21			21			16		
Colorado	263			104	55		2			97			5		
Connecticut	1						1								
Delaware	1						1								
District of Columbia	4,580	299	23	536	215	934	1,133	55	324	72	52	909		6	22
Florida	18			17			1								
Georgia	1						1								
Hawaii	2													2	
Idaho	454			67	134					253					
Illinois	75				21		33			18	3				
Indiana	26						25				1				
Iowa	43				21		22								
Kansas	139			7	96		36								
Kentucky	16						16								
Louisiana	9			7			2								
Maine	11						11								
Maryland	1						1								
Massachusetts	25						25								
Michigan	68			3	40		24				1				
Minnesota	302			45	256		1								
Mississippi	7			4			3								
Missouri	15			3	7		5								
Montana	684			102	391					190			1		
Nebraska	266			26	82		1			157					
Nevada	173			25	117					31					
New Hampshire	9						9								
New Jersey	3						2				1				
New Mexico	536			60	435					33	1			7	
New York	67				12		53				2				
North Carolina	27				26		1								
North Dakota	382			27	303					51	1				
Ohio	42						38				4				
Oklahoma	978			19	952		2						5		
Oregon	332			70	202		1			57			2		
Pennsylvania	242				72		50				120				
South Carolina	1						1								
South Dakota	781			46	691		1			41			2		
Tennessee	29						25				3				
Texas	4			2			2								
Utah	190			46	93		1			50					
Vermont	1						1								
Virginia	2						1				1				
Washington	593			42	272		2	4		265	2		6		
West Virginia	1						1								
Wisconsin	237			3	215		19								
Wyoming	221			67	86					59			9		
General field service	909	8		1	64				739	92	5				

Comparison with a year ago (1909), exclusive of examining surgeons and specialists for pensions (4,647 in 1909, and 4,668 in 1910—increase of 21): Grand total in 1910, 14,262—7 less; in Washington, 4,580—23 less; outside, 9,682—16 more. The 4,668 examining surgeons and specialists for pensions who are not salaried employees but compensated by fees are not included in the foregoing table.

APPENDIX E.

TABLE 1.—*Comparative statement of area entered, entries made, patents issued, etc., General Land Office, fiscal years 1906–1910.*

Principal classes of entries.	1906.	1907.	1908.	1909.	1910.
Homesteads:					
Declaratory statements	1,266	1,158	615	714	1,521
Original	89,600	93,957	87,057	75,445	98,598
Final	25,546	27,202	29,036	25,510	25,412
Commuted	9,765	13,343	23,059	21,257	17,092
Desert land:					
Original	4,985	6,922	8,965	10,323	15,620
Final	1,242	1,753	2,242	1,729	2,041
Mineral:					
Applications	1,642	1,509	1,497	1,416	1,175
Entries	1,598	1,374	1,428	1,468	1,114
Coal:					
Declaratory statements	2,340	1,340	1,276	866	825
Entries	244	187	303	213	248
Timber and stone entries	5,037	11,092	11,719	6,007	1,142
Public sales (isolated tracts)	909	1,368	1,397	3,501	3,016
Total	154,084	161,205	169,194	148,449	167,804
Total area entered ... acres	19,431,187	20,997,566	19,090,356	19,892,503	26,392,026
Number of patents issued	61,361	45,978	90,522	69,919	72,082
Letters received	205,552	262,693	300,532	350,530	420,460

TABLE 2.—*Comparative statement of work in the Patent Office, 1906–1910.*

DEEDS RECEIVED FOR RECORD AMONG THE TRANSFERS OF PATENTS, NUMBER OF WORDS RECORDED, AND FEES RECEIVED THEREFOR.

Year.	Deeds received.	Words recorded.	Fees received.
1906	26,434	11,052,325	$42,344.60
1907	25,956	10,570,150	41,337.09
1908	26,192	11,368,550	41,739.80
1909	28,258	11,504,800	45,098.68
1910	29,708	12,690,800	47,963.42

PRINTED COPIES OF PATENTS SOLD AND FEES RECEIVED THEREFOR.

Year.	Copies sold.	Amount received.
1906	1,983,092	$79,487.76
1907	2,117,847	86,433.88
1908	2,164,670	89,453.31
1909	2,106,879	97,765.15
1910	2,257,444	104,683.40

TABLE 2.—*Comparative statement of work in the Patent Office, 1906–1910*—Cont'd.

COPIES OF RECORDS FURNISHED AND FEES RECEIVED THEREFOR.

Year.	Number of words.	Amount received.
1906	21,134,700	$21,134.70
1907	24,888,200	24,888.20
1908	21,959,100	21,959.10
1909	25,549.200	25,549.20
1910	28,151,600	28,151.60

APPLICATIONS FOR LETTERS PATENT AND APPEALS FILED, AND PATENTS GRANTED.

Year.	Applications.	Appeals on the merits.	Patents granted.
1906	55,619	1,413	31,070
1907	56,514	1,410	33,644
1908	58,527	1,250	34,003
1909	62,800	1,345	34,332
1910	63,365	1,609	36,287

TABLE 3.—*Comparative statement of work in Office of Indian Affairs, showing increase and decrease, fiscal years 1906–1910.*

Class of work.	1906.	1907.	1908.	1909.	1910.
Schools in operation	318	341	343	363	385
Hospitals in use	41	44	48	51	53
Plans and specifications prepared	41	42	38	68	79
Authorities for expenditures	7,144	7,885	8,362	10,284	9,156
Contracts and building leases	727	777	626	532	650
School and agency employees, exclusive of Five Civilized Tribes	(a)	4,551	4,574	4,746	4,902
Tribal enrollments, annuity and other individual Indian payments	491	560	3,469	7,247	10,661
Allotments approved	7,094	10,643	6,290	8,000	10,992
Trust patents issued	3,067	3,469	10,461	7,533	5,515
Applications for patents in fee [b]	(a)	889	1,855	1,934	1,368
Applications for removal of restrictions	3,064	5,302	2,045	2,187	1,840
Tracts of land sold (inherited and noncompetent)	643	820	860	988	1,898
Leases of lands	9,030	13,179	10,736	6,773	8,775
Bonds covering Indian money deposits	98	61	79	258	449
Accounts, cash and property	1,350	1,377	1,518	1,675	1,778
Claims	8,910	9,606	9,823	9,026	9,499
Mail received, pieces	113,838	116,958	143,702	184,968	[c] 182,228
Mail dispatched, pieces	(a)	(a)	(a)	177,724	[c] 179,808
Total	155,866	176,504	204,329	424,357	429,531

[a] No statistics available.

[b] Prior to fiscal year 1907 patents in fee were issued under specific acts of Congress for each case.

[c] Estimate for entire year based on statistics for ten months to November 1, 1910.

APPENDIX F.

TABLE 1.—*Land certified or patented under acts of Congress, to States and corporations for railroad and military wagon-road purposes from the year 1850 to June 30, 1910.*

STATE GRANTS.

	Acres.
Illinois:	
Illinois Central	2,595,133.00
Mississippi:	
Mobile and Ohio River	[a]737,130.29
Vicksburg and Meridian	199,101.51
Gulf and Ship Island	139,113.22
	1,075,345.02
Alabama:	
Mobile and Ohio River	[a]419,528.44
Alabama and Florida	399,022.84
Selma, Rome and Dalton	458,555.82
Coosa and Tennessee	67,784.96
Mobile and Girard	[b]302,181.16
Alabama and Chattanooga	653,888.76
South and North Alabama	445,438.43
	2,746,400.41
Florida:	
Florida Central and Peninsular	721,693.71
Florida and Alabama	166,691.08
Pensacola and Georgia	1,279,236.70
Florida, Atlantic and Gulf Central	29,384.18
	2,198,005.67
Louisiana:	
Vicksburg, Shreveport and Pacific	463,746.78
New Orleans, Opelousas and Great Western	([c])
Arkansas:	
St. Louis, Iron Mountain and Southern	1,325,275.46
Little Rock and Fort Smith	1,052,082.51
Memphis and Little Rock	184,657.33
	2,562,015.30

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[a] In the adjustment of this grant the road was treated as an entirety and without reference to the state line; hence Alabama has had approved to her more and Mississippi less than they would appear to be entitled to in proportion to the length of the road in the respective States.

[b] This grant was adjusted April 24, 1893, and 302,181.16 acres were allotted to the company. The balance of the previously certified lands were ordered restored to entry under the forfeiture act of September 29, 1890.

[c] Certified lands, footing 719,189.79 acres, were reconveyed to the United States by the governor of Louisiana February 24, 1888, the grant having been forwarded by the act of July 14, 1870 (16 Stat., 277).

	Acres.
Missouri:	
Southwest branch of the Pacific Road	1,161,284.51
Hannibal and St. Joseph	611,323.35
St. Louis, Iron Mountain and Southern	65,120.31
	1,837,728.17
Iowa:	
Burlington and Missouri River	389,990.11
Chicago, Rock Island and Pacific	[a] 483,214.86 161,532.81
Cedar Rapids and Missouri River	[a] 922,813.67 244,022.96
Dubuque and Sioux City	[a] 556,406.74
Iowa Falls and Sioux City	683,057.84
Des Moines Valley	840,091.36
Chicago, Milwaukee and St. Paul McGregor and Missouri River	326,216.10
Sioux City and St. Paul	322,412.81
	4,929,758.26
Michigan:	
Port Huron and Lake Michigan	37,467.44
Jackson, Lansing and Saginaw	743,787.58
Grand Rapids and Indiana	852,521.10
Flint and Pere Marquette	512,877.03
Marquette, Houghton and Ontonagon	[b] 305,929.59
Ontonagon and Brule River	34,227.08
Bay de Noquet and Marquette	128,301.05
Chicago and Northwestern	518,065.36
	3,133,176.23
Wisconsin:	
Chicago, St. Paul, Minneapolis and Omaha (formerly West Wisconsin)	813,706.71
Wisconsin Railroad Farm Mortgage Land Company	163,159.65
Chicago, St. Paul, Minneapolis and Omaha (formerly St. Croix and Lake Superior)	816,487.76
Branch to Bayfield	471,721.14
Chicago and Northwestern	546,446.20
Wisconsin Central	838,227.69
	3,649,749.15

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[a] Includes 35,685.49 acres of the Chicago, Rock Island and Pacific Railroad, 109,756.85 acres of the Cedar Rapids and Missouri River Railroad, and 77,535.22 acres of the Dubuque and Sioux City Railroad, situated in the old Des Moines River grant of August 8, 1846, which should be deducted from the foregoing amount. (Wolcott *v.* Des Moines Co., 5 Wall., 631).

[b] Excess of 131,481.71 acres originally certified under this grant reconveyed by State or entered under act March 3, 1887, by Michigan Land and Iron Company (Limited), grant having been forfeited in part by act March 2, 1889 (25 Stat., 1008).

	Acres.
Minnesota:	
St. Paul, Minneapolis and Manitoba (formerly first division, St. Paul and Pacific)	[a] 256,477.73
Western Railroad (succeeded by St. Paul and Northern Pacific Railroad Company)	
St. Paul, Minneapolis and Manitoba (formerly St. Vincent extension of the St. Paul and Pacific)	
Minnesota Central	179,734.29
Winona and St. Peter	1,680,974.92
St. Paul and Sioux City	1,126,578.55
St. Paul and Duluth	860,973.62
Southern Minnesota, from a point on the Mississippi River to Houston	546,745.44
Southern Minnesota, extension (now Chicago, Milwaukee and St. Paul)	
Hastings and Dakota	377,776.15
	8,028,999.95
Minnesota, North Dakota, Montana, Washington:	
St. Paul, Minneapolis and Manitoba, now Great Northern (main and branch), a special act (Aug. 5, 1892, 27 Stat. L., 390) to provide for indemnity for lands relinquished by the company	([b])
Kansas:	
Leavenworth, Lawrence and Galveston	[c] 249,446.13
Missouri, Kansas and Texas	[d] 976,593.22
Atchison, Topeka and Santa Fe	2,244,788.14
St. Joseph and Denver City	462,933.24
	4,633,760.73
Grand total of state grants	37,853,079.40

CORPORATION GRANTS.

Union Pacific	11,930,685.95
Central Pacific	5,751,706.89
Central Pacific (successor by consolidation with Western Pacific)	458,147.97
Central branch, Union Pacific	223,080.50
Union Pacific (Kansas division)	6,175,660.63
Union Pacific (successor to the Denver Pacific R. R. Co.)	807,564.76
Burlington and Missouri River in Nebraska	2,374,090.77
Sioux City and Pacific (now Missouri Valley Land Co.)	42,610.95
Northern Pacific	32,664,651.37
Oregon branch of the Central Pacific (California and Oregon)	3,154,913.49
Oregon and California	2,765,677.10
Atlantic and Pacific (now Santa Fe Pacific)	4,238,711.23
Southern Pacific (main line)	3,478,136.44
Southern Pacific (branch line)	1,315,707.13
Oregon Central	128,618.13
New Orleans Pacific	1,001,017.33
Grand total to corporations	76,486,980.64

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[a] Declared to be one grant. (See 32 L. D., 21.)

[b] See Minnesota for original grants.

[c] Includes 186,936.72 acres of the "Osage ceded reservation," which are to be deducted from the above amount under the decision of the Supreme Court in the case of the Leavenworth, Lawrence and Galveston Railroad *v.* The United States (92 U. S., 733).

[d] Includes 270,970.78 acres in the "Osage ceded reservation," which are to be deducted under the decision cited in note [c], p. 89.

WAGON ROADS.

	Acres.
From Lake Erie to Connecticut Western Reserve	80,773.54
From Lake Michigan to Ohio River	170,580.24
From Fort Wilkins, Copper Harbor, Mich., to Greenbay, Wis	302,930.96
From Fort Wilkins, Copper Harbor, to Wisconsin state line	221,013.35
Oregon Central Military Co. (now California and Oregon Land Co.)	605,860.62
Corvallis and Yaquina Bay	81,895.25
Willamette Valley and Cascade Mountain	861,511.86
Dalles military road	566,827.04
Coos Bay military road	105,240.11
Grand total	2,986,632.97

TABLE 2.—*Lands confirmed to States and Territories under various grants for educational and other purposes not including lands in place granted for support of common schools.*

State or Territory and purpose of grant.	Granted.	Approved and certified.
Alabama:	*Acres.*	*Acres.*
Tuskegee Normal and Industrial Institute	25,000.00	25,002.87
Industrial School for Girls	25,000.00	24,630.08
University	46,080.00	46,080.00
Arizona:		
University	46,080.00	37,210.14
California:		
Internal improvements	500,000.00	502,068.47
Colorado:		
Agricultural college	90,000.00	89,924.55
Idaho:		
University	46,080.00	45,518.23
University, Moscow	50,000.00	48,108.64
Agricultural college	90,000.00	89,949.82
Penitentiary	50,000.00	49,041.74
Public buildings	32,000.00	31,988.80
Insane asylum	50,000.00	49,994.87
Educational, charitable, penal, and reformatory	150,000.00	149,676.59
Normal schools	100,000.00	98,255.71
Scientific schools	100,000.00	99,972.19
Kansas:		
Agricultural college, act of May 29, 1908	7,682.00	7,581.92
Minnesota:		
Experimental forestry	20,000.00	20,000.64
Public park	8,392.51	....
Montana:		
University	46,080.00	46,079.78
Agricultural college	90,000.00 50,000.00	87,487.75 49,986.58
Public buildings	32,000.00 150,000.00	31,986.47 147,927.88
Deaf and dumb asylums	50,000.00	49,988.23
Reform schools	50,000.00	48,746.71
School of mines	100,000.00	99,771.38
Normal schools	100,000.00	98,692.81
Militia camp	640.00	640.00
Observatory for university	480.00	480.00
Biological station	160.00	160.84
Nevada:		
University	46,080.00	45,766.08
Internal improvements	500,000.00	499,401.04
Penitentiary	12,800.00	12,732.96
Public buildings	12,800.00	12,704.79
Mining and Mechanic Arts College	90,000.00	89,744.11
New Mexico:		
University	111,080.00	110,116.82
University saline lands		1,622.86
Agricultural college	100,000.00	98,849.48
Improvement of the Rio Grande	100,000.00	99,691.93
Penitentiary	50,000.00	49,992.82
Public buildings	32,000.00	31,473.91
Insane asylum	50,000.00	48,196.00
Deaf and dumb asylum	50,000.00	49,737.02
Reform schools	50,000.00	50,000.18
School of mines	50,000.00	49,718.83

TABLE 2.—*Lands confirmed to States and Territories, etc.*—Continued.

State or Territory and purpose of grant.	Granted.	Approved and certified.
	Acres.	*Acres.*
New Mexico—Continued.		
Normal school	100,000.00	100,009.85
Blind asylums	50,000.00	49,999.88
Reservoirs	500,000.00	499,809.72
Miner's hospital	50,000.00	49,942.56
Military institute	50,000.00	50,014.34
North Dakota:		
University	46,080.00 40,000.00	45,964.93 39,751.07
Agricultural college	90,000.00 40,000.00	89,839.15 40,000.03
Public buildings	32,000.00 50,000.00	30,342.11 49,999.86
Educational and charitable	170,000.00	169,993.51
Deaf and dumb asylum	40,000.00	39,995.73
Reform school	40,000.00	39,882.69
School of mines	40,000.00	40,003.51
Normal schools	80,000.00	80,005.90
Oklahoma:		
Normal schools	300,000.00	292,377.00
Oklahoma University	250,000.00	249,440.69
University Preparatory School	150,000.00	148,943.63
Agricultural and Mechanical College	250,000.00	246,513.01
Colored Agricultural and Normal University	100,000.00	97,809.31
South Dakota:		
University	40,000.00 46,080.00	39,999.10 46,080.12
Agricultural college	120,000.00 40,000.00	120,000.32 39,923.31
Public buildings	32,000.00 50,000.00	32,001.68 49,996.18
Educational and charitable	170,000.00	170,000.31
Deaf and dumb asylums	40,000.00	39,999.97
Reform schools	40,000.00	39,996.24
School of mines	40,000.00	39,999.72
Normal schools	80,000.00	80,000.66
Missionary work	160.00	160.00
Military camp ground	640.00	640.00
Insane asylum	640.00	640.00
Utah:		
University	46,080.00 110,000.00	45,842.15 87,125.82
Agricultural college	200,000.00	190,056.67
Public buildings	64,000.00	53,783.53
Insane asylums	100,000.00	98,054.12
Deaf and dumb asylums	100,000.00	94,760.14
Reform school	100,000.00	99,221.35
School of mines	100,000.00	94,291.64
Normal schools	100,000.00	98,787.91
Blind asylums	100,000.00	99,358.07
Reservoirs	500,000.00	485,954.20
Miners' hospital	50,000.00	49,642.98
Washington:		
University	46,080.00	46,030.26
Agricultural college	90,000.00	89,438.20
Public buildings	32,000.00 100,000.00	31,986.62 99,986.38
Educational and charitable	200,000.00	200,000.03
Normal schools	100,000.00	99,981.46
Scientific schools	100,000.00	99,980.93
Wisconsin:		
Forestry	20,000.00	19,097.79
Wyoming:		
University	46,080.00	43,267.91
Agricultural college	90,000.00	81,925.17
Penitentiary	30,000.00	29,997.45
Public buildings	32,000.00 75,000.00	31,974.04 74,995.78
Insane asylums	30,000.00	29,329.02
Educational, penal, etc. (Carbon County)	30,000.00	29,969.70
Educational, penal, etc	260,000.00	240,928.36
Deaf and dumb asylums	30,000.00	29,806.41
Miners' hospital	30,000.00	29,851.86
Fish hatchery (Albany County)	480.00	480.00
Fish hatchery	5,000.00	4,976.26
Poor farm	10,000.00	9,990.60
Total	9,414,704.51	9,257,642.66

TABLE 3.—*Miscellaneous grants in addition to those in Tables 1 and 2, the most of which have been virtually satisfied.*

State.	Internal improvement.	Seminaries or universities.	Charitable, educational, or other purposes.	Agricultural and mechanical colleges.	
				Lands.	Scrip.
	Acres.	*Acres.*	*Acres.*	*Acres.*	*Acres.*
Alabama	500,000.00				240,000
Arkansas	500,000.00	46,080.00	10,600.00		150,000
California		46,080.00	6,400.00	150,000	
Colorado	500,000.00	46,080.00	64,000.00		
Connecticut					180,000
Delaware					90,000
Florida	500,000.00	92,160.00	5,120.00		90,000
Georgia					270,000
Illinois	500,000.00	46,080.00			480,000
Indiana	500,000.00	46,080.00			390,000
Iowa	500,000.00	46,080.00	3,200.00	240,000	
Kansas	500,000.00	46,080.00	6,400.00	90,000	
Kentucky			22,508.65		330,000
Louisiana	500,000.00	46,080.00			210,000
Maine					210,000
Maryland					210,000
Massachusetts					360,000
Michigan	500,000.00	46,080.00	3,200.00	240,000	
Minnesota	500,000.00	92,160.00	6,400.00	120,000	
Mississippi	500,000.00	69,120.00			210,000
Missouri	500,000.00	46,080.00	2,560.00	330,000	
Nebraska	500,000.00	46,080.00	25,600.00	90,000	
New Jersey					210,000
New Hampshire					150,000
New York					990,000
North Carolina					270,000
Ohio	500,000.00	69,120.00			630,000
Oregon	500,000.00	46,080.00	6,400.00	90,000	
Pennsylvania					780,000
Rhode Island					120,000
South Carolina					180,000
Tennessee					300,000
Texas					180,000
Vermont					150,000
Virginia					300,000
West Virginia					150,000
Wisconsin	500,000.00	92,160.00	6,400.00	240,000	
Total	8,500,000.00	967,680.00	168,788.65	1,590,000	8,640,000

APPENDIX G.

Designations under the enlarged-homestead acts.

State.	Acreage designated, July 1, 1909.	Fiscal year July 1, 1909, to June 30, 1910.		Acreage designated, July 1, 1910.	Period July 1, 1910, to November 1, 1910.		Acreage designated, November 1, 1910.
		Designations.	Cancellations.		Designations.	Cancellations.	
Arizona	26,657,280			26,657,280		46,080	26,611,200
Colorado	20,299,840	3,880		20,303,720	23,040		20,326,760
Idaho (secs. 1-5)					5,225,280		5,225,280
Montana	19,957,960	9,728,366	200	29,686,126	739,415		30,425,541
Nevada	49,512,960			49,512,960			49,512,960
New Mexico	14,808,520	1,138,963	64,140	15,883,343	63,886		15,947,229
Oregon	8,346,560	820,400		9,166,960	1,914,080		11,081,040
Utah:							
Sections 1-5	7,020,642			[a]6,654,469	142,439		6,797,228
Section 6	571,182	730,576		1,301,758	17,630		1,319,388
Washington	3,576,960	107,096	282,240	3,401,816			3,401,816
Wyoming	10,676,280	6,276,033	47,640	16,904,673	376,420		17,281,093
Total	161,428,184	18,805,314	394,220	179,473,105	8,502,190	46,080	187,929,535

[a] Decrease because of redesignation under section 6.

APPENDIX H.

TABLE 1.—*Progress of coal classification and valuation.*

State.	Status on July 1, 1909.			
	Withdrawals outstanding (acres).	Coal lands classified (acres).	Valuation.	Value at minimum price.
Arkansas		60,715	$1,473,762	$1,214,320
Colorado	10,218,329	598,338	16,734,510	9,394,419
Montana	9,365,827	957,514	20,626,881	18,103,757
New Mexico	4,148,508	1,810,398	21,809,016	21,774,456
North Dakota	402,562	240,814	4,584,255	4,584,255
Oregon	379,722			
Utah	5,282,514	418,294	12,103,164	6,049,714
Washington	2,252,087			
Wyoming	13,237,918	2,097,349	58,280,700	37,398,281
Total	45,287,467	6,183,422	135,612,288	98,519,202

State.	Status on July 1, 1910.			
	Withdrawals outstanding (acres).	Coal lands classified (acres).	Valuation.	Value at minimum price.
Arizona	161,280			
Arkansas		60,715	$1,473,762	$1,214,320
California		7,720	585,086	154,404
Colorado	6,518,845	2,058,094	118,818,995	37,911,729
Montana	23,020,360	1,203,814	28,163,693	22,487,099
New Mexico	2,932,000	1,816,144	22,042,002	21,889,384
North Dakota	387,202	240,814	4,584,255	4,584,255
Oregon	379,642	80	1,600	1,600
Utah	5,897,958	468,040	14,981,435	6,957,177
Washington	2,207,967			
Wyoming	12,956,520	4,232,565	250,457,948	72,955,843
Total	54,461,774	10,087,986	441,108,776	168,155,811

State.	Status on November 1, 1910.			
	Withdrawals outstanding (acres).	Coal lands classified (acres).	Valuation.	Value at minimum price.
Arizona	118,718			
Arkansas		60,715	$1,473,762	$1,214,320
California	239,903	7,720	585,086	154,404
Colorado	6,091,779	2,358,754	144,751,879	42,156,431
Idaho	8,266,509			
Montana	22,922,072	1,180,386	27,306,700	22,018,501
New Mexico	2,837,132	1,827,183	24,440,487	22,106,221
North Dakota	18,215,384	240,814	4,584,255	4,584,255
Oregon	107,834	80	1,600	1,600
South Dakota	2,869,377			
Utah	6,259,127	485,083	16,059,946	7,127,584
Washington	2,207,967			
Wyoming	12,796,062	4,213,508	276,016,064	72,646,707
Total	82,931,864	10,374,243	495,219,779	172,010,023

Within the limits of these withdrawals some private lands are included, the area of which is undetermined; such lands are excluded where feasible.

TABLE 2.—*Oil-land withdrawals.*

[Area in acres.]

State.	Withdrawals outstanding July 1, 1909.	Fiscal year ended June 30, 1910.		Withdrawals outstanding July 1, 1910.	Period July 1, 1910, to November 1, 1910.		Withdrawals outstanding November 1, 1910.
		New withdrawals.	Restorations.		Withdrawals.	Restorations.	
Arizona		230,400		230,400			230,400
California	2,260,344	591,729	878,456	2,482,617	120,029		2,602,646
Colorado		87,474		87,474			87,474
Louisiana	1,451,520		1,036,800	414,720			414,720
New Mexico		419,901		419,901			419,901
Oregon	74,849			74,849			74,849
Utah		1,196,848	615,282	581,566			581,566
Wyoming		397,105	141,644	255,461	8,297	20,424	243,334
Total	3,795,713	2,923,457	2,172,182	4,546,988	128,326	20,424	4,654,890

Within the limits of these withdrawals some private lands are included, the area of which is undetermined; such lands are excluded where feasible.

TABLE 3.—*Phosphate-land withdrawals.*

[Area in acres.]

State.	Withdrawals outstanding July 1, 1909.	Fiscal year ended June 30, 1910.		Withdrawals outstanding July 1, 1910.	Period July 1, 1910, to November 1, 1910.		Withdrawals outstanding November 1, 1910.
		New withdrawals.	Restorations.		Withdrawals.	Restorations.	
Florida		2,400		2,400	35,039		37,439
Idaho	1,625,425	189,132	712,240	1,102,317	480	1,280	1,101,517
Utah	524,975	7,669	425,099	107,545	200		107,745
Wyoming	1,945,308	202,306	880,120	1,267,494			1,267,494
Total	4,095,708	401,507	2,017,459	2,479,756	35,719	1,280	2,514,195

Within the limits of these withdrawals some private lands are included, the area of which is undetermined; such lands are excluded where feasible.

TABLE 4.—*Power-site withdrawals.*

[First withdrawal approved May 4, 1909. Area in acres.]

State.	Withdrawals outstanding July 1, 1909.	Fiscal year ended June 30, 1910.		Withdrawals outstanding July 1, 1910	Period July 1, 1910, to November 1, 1910.		Withdrawals outstanding November 1, 1910.
		New withdrawals.	Restorations.		Withdrawals.	Restorations.	
Arizona		107,550		107,550			107,550
California		47,819		47,819	5,548		53,367
Colorado	22,240	182,776	3,467	201,549	5,540		207,089
Idaho	59,882	171,089		230,971	1,400	3,584	228,787
Minnesota					3,578		3,578
Montana	46,367	77,029	881	122,515	9,815	9,604	122,726
Nevada		14,091		14,091	1,284		15,375
New Mexico		14,536		14,536		4,830	9,706
Oregon	81,118	96,803	1,200	176,721		3,903	172,818
Utah	34,880	380,671	35,639	379,912			379,912
Washington		55,439		55,439	10,807		66,246
Wyoming	35,383	72,015	4,002	103,396		18,741	84,655
Total	279.870	1,219,818	45,189	[a] 1,454,499	37.972	40,662	1.451,809

[a] On July 2, 1910, 1,454,499 acres of withdrawn lands was confirmed by the President as subject to the provisions of the act of June 25, 1910.

APPENDIX I.

Expenditures by projects on Indian lands and estimated cost of their completion.

Project or system.	Irrigable area under project.	Irrigable area now under ditch.	Estimated cost.	Construction cost to June 30, 1910.
Arizona:	*Acres.*	*Acres.*		
Camp McDowell	450	450		$4,312.07
Colorado River	150,000	206	$122,000.00	112,049.41
Fort Apache	1,400	1,400	36,577.00	4,650.70
Fort Mojave	1,000		5,025.00	9,967.35
Havasupai			4,410.00	1,910.00
Kaibab	220	220	2,664.60	5,073.02
Keams Canyon				5,567.30
Papago	1,400	1,400	2,850.00	7,744.02
Rice Station				5,522.02
Pima	25,000		602,972.50	318,446.50
San Carlos	850	850	10,199.00	58,872.63
Truxton Canyon	20	20	10,000.00	15,038.20
California:				
Southern California reservations	3,800	3,490	42,463.51	126,251.62
Colorado:				
Southern Utes, allotted	18,630	3,365	225,378.51	71,201.58
Fort Lewis				274.24
Idaho:				
Fort Hall	42,000	20,000	787,703.76	703,116.66
Fort Lapwai	299	299		2,900.70
Lemhi				2,268.25
Montana:				
Blackfeet	44,000	14,000	1,258,596.50	237,214.79
Crow	69,340	62,689		934,285.84
Flathead	150,000		4,500,000.00	235,283.85
Fort Belknap	34,600	20,900	211,462.32	156,080.39
Fort Peck	170,000	1,200	2,200,000.00	87,408.68
Fort Shaw	100	100		1,771.81
Northern Cheyenne, Rosebud				4,684.48
Northern Cheyenne, Tongue River	6,000	1,400	213,783.96	109,882.76
Nevada:				
Carson sink allotments	4,640	4,640	120,040.00	24,128.00
Fort McDermitt	300	300	1,410.00	1,218.95
Moapa River	175	175		125.58
Pyramid Lake	3,500	1,000	65,000.00	21,974.52
Walker River	5,764	1,400	92,124.04	87,015.13
Western Shoshone	6,000	300	33,000.00	25,959.69
New Mexico:				
Albuquerque				4,818.08
Jicarilla	280	280		6,785.04
Mescalero	350	350		7,853.25
Navajo and Moqui	15,000	4,000	[a] 250,000.00	210,495.06
Pueblos	6,656	6,656		41,228.78
San Juan	4,500	4,500	101,577.00	7,112.23
Santa Fe				3,422.74
Zuni	8,000	3,200	552,620.91	351,857.23
Oregon:				
Klamath	80,000	3,000	[b] 154,780.96	35,141.59
Warm Springs	10	10		200.00
South Dakota:				
Pine Ridge	65	65		[c] 34,654.08
Utah:				
Uintah	98,360	65,720	899,132.42	648,661.70
Shivwits	100	100		
Washington:				
Colville	1,746	1,746		
Yakima	100,000	30,000	1,966,790.00	242,408.09
Wyoming:				
Shoshone	63,657	45,399	720,000.00	438,565.86
Administration, Mission Indians, preliminary examinations, etc				131,833.16
Total	1,118,212	305,430	15,193,161.99	5,547,237.58

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[a] Final estimate depends on possibilities to irrigate from underground sources which are now being investigated.

[b] Estimate to complete.

[c] Approximate only.

NOTE.—Construction cost includes maintenance for some projects where the expenditures for maintenance have not been kept separate from construction.

APPENDIX J.

Appropriations and revenues of national parks for the fiscal years 1906–1910.

	Appropriation.	Revenue.	Total.
Yellowstone National Park:			
1906	$7,500.00	$1,522.50	
1907	7,500.00	2,808.96	
1908	8,000.00	4,699.65	
1909	8,000.00	4,790.20	
1910	8,000.00	18,188.82	
	39,000.00	32,010.13	$71,010.13
Yosemite National Park:			
1906	5,400.00	1,000.00	
1907	5,750.00	9,193.04	
1908	30,000.00	14,390.06	
1909	30,000.00	16,051.17	
1910	30,000.00	21,373.18	
	101,150.00	62,007.45	163,157.45
Sequoia National Park:			
1906	10,000.00		
1907	10,000.00	159.50	
1908	15,550.00	43.15	
1909	15,550.00	46.57	
1910	15,550.00	121.78	
	66,650.00	371.00	67,021.00
General Grant National Park:			
1906	2,000.00		
1907	2,000.00		
1908	2,000.00	63.75	
1909	2,000.00		
1910	2,000.00	50.00	
	10,000.00	113.75	10,113.75
Crater Lake National Park:			
1906	3,000.00		
1907–8	7,315.00	25.00	
1909	3,000.00		
1910	3,000.00	11.00	
	16,315.00	36.00	16,351.00
Mesa Verde National Park:			
1907–8	7,500.00		
1909	7,500.00		
1910	7,500.00		
	22,500.00		22,500.00
Mount Rainier National Park:			
1907	2,500.00	205.22	
1908	3,000.00	170.00	
1909	3,000.00	1,104.79	
1910	3,000.00	8,953.79	
	11,500.00	10,433.80	21,933.80
Wind Cave National Park:			
1906	2,500.00		
1907	4,400.00		
1908	2,500.00	200.00	
1909	2,500.00		
1910	2,500.00	340.75	
	14,400.00	990.75	15,390.75
Platt National Park, formerly Sulphur Springs Reservation:			
1906		37,307.44	
1907		178.00	
1908		7,021.00	
1909		272.00	
1910		2,130.31	
		46,908.75	46,908.75
	281,515.00	152,871.63	434,386.63

Total appropriations	$281,515.00
Total revenues	152,871.63
	434,386.63

APPENDIX K.

Location, area, and characteristics of national parks.

Name.	Location.	When established.	Area (acres).	Private lands (acres).	Visitors, 1910.	Special characteristics.
Yellowstone	Wyoming, Montana, and Idaho.	Mar. 1, 1872	2,142,720	None.	19,575	Wonderful scenery, geysers, boiling springs, mud volcanoes and springs, mountains, grand waterfalls, brilliant hued canyons, great lake 8,000 feet above the level of the sea; wild animals.
Yosemite	California	Oct. 1, 1890	719,622	19,827	13,619	Mountain scenery, magnificent waterfalls, the Hetch Hetchy and Yosemite Valley, ice-sculptured canyons, glacier lakes, forests.
Sequoia	do	Sept. 25, 1890	161,597	3,716.96	2,407	The home of the "Big Tree" (Sequoia Gigantea), growing to a height of 300 feet with a diameter of 30 feet, the bark being 2 feet thick; rugged and picturesque scenery, beautiful cascades and falls, and wonderful caves.
General Grant	do	Oct. 1, 1890	2,536	160	1,178	
Mount Rainier	Washington	Mar. 2, 1899	207,360	18.2	8,000	Glaciers and wild mountain scenery.
Crater Lake	Oregon	May 22, 1902	159,360	2,458.11	5,000	Rugged mountain scenery, beautiful lake within the crater of an extinct volcano, etc.
Wind Cave	South Dakota	Jan. 9, 1903	10,522	160	3,387	Well known for a cavern having many miles of galleries and numerous chambers of considerable size containing many peculiar formations.
Platt	Oklahoma	July 1, 1902 Apr. 21, 1904	848.22	None.	25,000	Noted for its bromide and other springs, the waters of which have medicinal qualities; park well wooded, scenery picturesque.
Mesa Verde	Colorado	June 29, 1906	42,376	880	250	Set aside to preserve the prehistoric ruins of an ancient people; rugged scenery.
Five-mile strip for protection of ruins.	do	do	175,360	....	....	
Hot Springs Reservation	Arkansas	June 16, 1880	911.63	None.	120,143	Famous for its thermal springs, having wonderful medicinal qualities.
Glacier	Montana	May 11, 1910	981,681	16,668.11	....	Famed for its beautiful lakes derived from glaciers, lofty mountains clad with forests, magnificent glacial formations, numberless waterfalls. Game, fish, and birds abound.
Sullys Hill	North Dakota	Apr. 27, 1904	780	None.	[a] 190	Small rugged hills containing prehistoric ruins. Practically a local park.
Casa Grande Ruins	Arizona	Mar. 2, 1889	480	None.	....	These ruins are one of the most noteworthy relics of a prehistoric age and people within the limits of the United States. Discovered in ruinous condition in 1694.

[a] Estimated.

APPENDIX L.

TABLE 1.—*Bird reserves created.*

Name of reservation.	Date.	Location.	Area.
Pelican Island	Mar. 14,1903	East Florida coast	5.50 acres.
Breton Island	Oct. 4,1904 Nov. 11,1905	Southeast coast of Louisiana	Unknown.
Stump Lake	Mar. 9,1905	North Dakota	27.39 acres.
Huron Islands	Oct. 18,1905	Lake Superior, Mich	Unknown.
Siskiwit Islands	do	do	Do.
Passage Key	do	Tampa Bay, Fla	36.37 acres.
Indian Key	Feb. 10,1906	do	90 acres.
Tern Islands	Aug. 8,1907	Mouths of Mississippi River, La	Unknown.
Shell Keys	Aug. 17,1907	South Louisiana coast	Do.
Three Arch Rocks	Oct. 14,1907	West Oregon coast	Do.
Flattery Rocks	Oct. 23,1907	West Washington coast	Do.
Quillayute Needles	do	do	Do.
Copalis Rock	do	do	Do.
East Timbalier Island	Dec. 7,1907	South Louisiana coast	Do.
Mosquito Inlet	Feb. 24,1908	East Florida coast	Do.
Tortugas Keys	Apr. 6,1908	Florida Keys, Fla	Do.
Klamath Lake	Aug. 8,1908	Oregon and California	Do.
Key West	do	Florida Keys, Fla	Do.
Lake Malheur	Aug. 18,1908	Oregon	Do.
Chase Lake	Aug. 28,1908	North Dakota	Do.
Pine Island	Sept. 15,1908	West Florida coast	Do.
Matlacha Pass	Sept. 26,1908	do	Do.
Palma Sola	do	do	Do.
Island Bay	Oct. 23,1908	Florida	Do.
Loch Katrine	Oct. 26,1908	Wyoming	Do.
East Park	Feb. 25,1909	California	Do.
Cold Springs	do	Oregon	Do.
Shoshone	do	Wyoming	Do.
Path Finder	do	do	Do.
Bellefourche	do	South Dakota	Do.
Strawberry Valley	do	Utah	Do.
Salt River	do	Arizona	Do.
Deer Flat	do	Idaho	Do.
Minidoka	do	do	Do.
Willow Creek	do	Montana	Do.
Carlsbad	do	New Mexico	Do.
Rio Grande	do	do	Do.
Keechelus Lake	do	Washington	Do.
Kachess Lake	do	do	Do.
Clealum Lake	do	do	Do.
Bumping Lake	do	do	Do.
Conconully	do	do	Do.
Yukon Delta	Feb. 27,1909	Alaska	Do.
Bering Sea	do	do	Do.
Pribilof	do	do	Do.
Tuxedni	do	do	Do.
Farallon	do	California	Do.
Culebra	do	Porto Rico	Do.
Hawaiian Islands	Feb. 3,1909	Hawaii	Do.
Bogoslof	Mar. 2,1909	Alaska	Do.
St. Lazaria	Feb. 27,1909	do	Do.

TABLE 2.—*Bird reserves enlarged.*

Pelican Island	Jan. 26,1909	Florida	Unknown.
Mosquito Inlet	Apr. 2,1909	do	Do.

REPORT OF THE COMMISSIONER OF THE GENERAL LAND OFFICE.

REPORT OF THE COMMISSIONER OF THE GENERAL LAND OFFICE.

DEPARTMENT OF THE INTERIOR,
GENERAL LAND OFFICE,
Washington, D. C., August 31, 1910.

SIR: The following report of the work in the General Land Office for the fiscal year ended June 30, 1910, and recommendations for change in legislation are respectfully submitted:

GENERAL STATEMENT.

A fair test of the amount of work performed in any given year in the General Land Office is found by examining the number of cases approved for patent and the number of patents issued. Applying this it will be seen that there was a greater amount of work performed during the fiscal year ended June 30, 1910, than was performed during the fiscal year ended June 30, 1909. This is especially to be commended in view of the fact that there was placed upon the Land Office an additional amount of work which had no relation to the adjudication of cases, in the production and in the copying of large numbers of records during the last winter for the use of the special joint committee of Congress.

The additional amount of work done is also respectfully called to your attention because of the proof which it evidences that during the period of exhaustive investigation into the affairs of the Land Office there was no disorganization in the office itself, but the work of the office progressed evenly and without disorder. There is no better commentary than this to be offered on the spirit of the office force and of their knowledge that there was hearty cooperation in the enforcement of the laws of the United States and in the carrying out of their intent and purpose.

As further evidence of the amount of work performed during the past fiscal year it may be stated that there were received in this office 420,160 letters, of which in round numbers 300,000 required an answer by letter, which would require the individual work of the employee whose duty it was to attend to the particular subject touched upon by each letter, the remainder being disposed of by the transmission of circulars in response. There were therefore on an average of 1,000 letters a day sent from this bureau, exclusive of circulars.

When the number of cases submitted and decided and applications passed upon and allowed or rejected is taken into consideration as constituting an important part of the letters written, together with the time necessarily consumed in the consideration of the cases, the amount of work performed by this bureau can be appreciated to some extent.

CASH RECEIPTS AND EXPENDITURES.

The total cash receipts from the sales of public lands, including fees and commissions on both original and final entries for the fiscal year 1910, were $8,371,637.10. Miscellaneous receipts were as follows: From sales of Indian lands, $2,037,551.68; reclamation water-right charges, $770,586.35; depredations on public lands, sales of government property, and copies of records and plats, $284,148.93, making the aggregate total of cash receipts of this bureau during the fiscal year 1910, $11,463,924.06, a decrease of $752,491.33 from the fiscal year 1909.

The total expenses of district land offices for salaries and commissions of registers and receivers, incidental expenses, and expenses of depositing public moneys during the fiscal year ended June 30, 1910, were $873,637.33, an increase of $29,541.49 over the fiscal year 1909. The aggregate expenditures and estimated liabilities of the public-land service, including expenses of district land offices, were $3,179,363.49, leaving a net surplus of $8,284,560.57.

AREA OF LAND ENTERED AND PATENTED.

The total area of public and Indian land originally entered during the fiscal year 1910 is 26,391,269.09, an increase of 6,498,765.33 acres, as compared with the area entered during the year 1909. This large increase is due to the great number of entries made in the Northwest, principally in the State of Montana, where, at one office, Great Falls, there was approximately as much land entered during the last fiscal year, namely, 2,064,502.06 acres, as there was in the whole State of Montana during the fiscal year 1909.

The area patented during the fiscal year is 10,983,150 acres, a decrease of 1,825,661 acres, as compared with the fiscal year 1909, which was the first year that statistics relating to the area of lands patented were compiled. The number of patents issued during the fiscal year 1910, however, exceeded that of 1909 by 2,163. Of this area, 7,404,598 acres were patented under the homestead law.

METHODS OF ADMINISTRATION.

There have been no material changes in the methods of the administration of business. It has been the effort of the office to bring up to perfection the new systems inaugurated by the radical changes of the prior two years.

TRACT BOOKS.

There has been a consistent effort made during the past fiscal year to improve the condition of the tract books. The foundation of the correct records in the General Land Office is in the tract books. It is found that up to recent years there has not been sufficient attention paid to this line of work, and it is the desire of the office that the keeping of the tract books should be improved so that the tract book can give a perfect history of the disposition of any particular piece of land.

NEW DIVISION.

It has been deemed advisable, and sanctioned by you, to send all of the government contested cases to a division which was created for that purpose. Under former practices Division "P," or the division which had jurisdiction over the work of the special service force, also took jurisdiction of the contested cases. It was thought that this carried into the contest too much of the personality of the force which had the duty of preparing and trying the case, and that, therefore, it was not good administration. Under the present practice the determination of the case is absolutely divorced from any inferences which may have surrounded the preparation and trial of the case, and the record only is submitted to the lawyer who acts as adjudicating officer. By eliminating from the papers the special agent's report it is considered that any possibility of an undue influence being exercised on the mind of the deciding officer is removed. This is further achieved by separating this adjudicating division from the division which has charge of the steps leading to the trial of the case.

APPEAL FROM DECISIONS OF INTERIOR DEPARTMENT.

I am heartily in favor of the passage of a law authorizing an appeal to be taken from the decisions of the Interior Department, to the Court of Appeals of the District of Columbia.

COAL LEGISLATION.

It is imperative that new legislation be passed covering the disposition of coal lands in Alaska and in the United States. The inadequacy of the present laws is universally conceded. This proposition, therefore, needs no argument. The progress of advancement in the

West is being retarded under present conditions by the difficulty in the successful opening of new mines under legislation as it exists to-day. Competition has been checked. The consumer is having to pay, therefore, a greater price than it would be reasonable to expect he would have to pay if it were possible to open new mines under legislation which would encourage the development of this resource. Legislation, however, which would not retain in the United States the right of supervision over the marketing of the product, would be a mistake. To throw this resource open so that the coal deposits would ultimately pass into the hands of monopolies and trusts would be to render the conditions worse than they are at present. Congress, therefore, should carefully guard the enactment of legislation, and see to it that the requisite control is retained in the United States, so that a combination for the purpose of unjustly advancing prices can be checked through Government supervision.

The object to be obtained is the laying of this public necessity in the coal bins of the ultimate consumer at the cheapest possible price consonant with a due adherence to the principles of conservation.

The same general theory should govern the enactment of legislation on the disposition of rights in water powers, namely, a guardianship looking to the supplying of the public needs at the cheapest rates. There is no destruction of supply in the use of water power.

LOCAL LAND OFFICES.

The organization of the local land offices should be changed and a great deal of money saved, and better administration secured, by the abolition of the positions of register and receiver and the creation of one position in lieu of the two. The positions of registers and receivers were created under the original organization when the duties were those of sales agent and recording officer. By additional legislation, as stated above, the duties of local officers have been changed. Under this dual system there is a divided responsibility. The register and receiver have to sign decisions and they are responsible together for the work of the office. This divided responsibility is not a successful method of management for any office. Experience has shown that there are frequent clashes between the two officers. The simplest organization would be the creation of a new office and the placing of one man in charge of all the work of the local office, and substituting for the receiver a bonded clerk. This bonded clerk could be secured for the work to be performed at a salary ranging from $1,500 to $2,000 a year; and the difference between that and the salary now paid to receivers would amount in saving to the Government, in round numbers, to about $150,000 a year. Better administration would be secured, and the Government would save a considerable sum.

PROOFS.

At present proofs are taken before the register and receiver. This necessitates in many cases a long trip from the land to the local office and entails a large expense upon the applicant, who has to journey thereto and bring his witnesses to testify in support of his claim. If this course be not pursued, the proof is taken before a United States commissioner. There is attached to this course the expense of the journey to his office on the part of the claimant and his witnesses. Apart from this expense of the claimant the procedure is not satisfactory. The work of a special agent is largely that of investigating cases where false proofs have been made. It is respectfully recommended that a more expeditious way, and one where there would be less cost to the claimant, would be under a system allowing proofs to be taken upon the land itself, before a special agent designated to visit the land, who should be authorized to collect from the claimant a fee, the amount of which should be based upon the distance of the claim from some given point within the land district. The expenses of the agent could be so arranged that his visit would cost the claimant less, and the proof would be very much more satisfactory. There would also be a great saving in rendering unnecessary the expenses of a subsequent examination by a special agent to detect fraudulent proofs.

HALL OF RECORDS.

There is no room in the building now occupied by the General Land Office for the proper care of the hundreds of thousands of valuable records which now exist. On the discontinuance of the last land office within a State the records therein are sent to the General Land Office, and are presumed to be filed in such manner that they can be of ready access to the general public. Owing to the confined quarters occupied by this office, these records are in a sad condition, and any person who desires to consult them has the greatest difficulty in finding any specific paper which he desires to see. In addition to this, the quarters in which they are kept are not suitable for the proper preservation of the papers. The old papers are not flat filed, and because of their age and the fact that they are kept in places which are too dry they have become as tinder, and when unfolded they readily break, become illegible, and drop to pieces.

In the land office are the original papers relating to the muniments of title or copies of such to hundreds of millions of acres, and in many instances lawsuits involving tracts of land of great value have hinged upon the records in this office. It is a paramount necessity for the proper preservation of these papers and for the proper consideration of the interests of those who possess lands the title to which has been derived from the United States, that a building should be erected for the purpose of properly assembling and keeping the old books and papers at present stored in the General Land Office. This is not intended to be a perfunctory recommendation, but one which I trust will receive the serious consideration of Congress.

At the present increase in the number of records to be filed it will in the short space of a year or two be a physical impossibility to find space in the building to store the papers.

THE FIELD SERVICE.

On March 4, 1909, Congress appropriated the sum of $1,000,000 for the "Protection of public lands, timber, etc.," for the fiscal year ended June 30, 1910, which amount was to be immediately available.

The average number of special agents employed per month under this appropriation during the fiscal year was 216. From this appropriation were also paid the salaries of the clerks to the chiefs of field divisions and the necessary temporary employees in this office to properly handle the increased work incident to the large number of reports being received from the field.

The total amount of cash collected and turned into the Treasury as a result of the work of the special agents in the field during the fiscal year is $349,234.01. Of this total amount collected, $198,971.17 was accepted as settlement for timber trespass and $150,262.84 was recovered by civil and criminal actions brought through the Department of Justice in cases of timber trespass and fines imposed and paid in cases of conspiracy, perjury, subornation of perjury, and unlawful inclosures.

As a result of investigations, 2,522,539.43 acres have been restored to the public domain—an increase of 1,243,228.76 acres over the amount restored during the preceding year. Of this total amount restored, 746,400 acres represent area of fraudulent entries (taking an average of 160 acres to each entry) canceled on special agents' reports; 1,764,073.82 acres restored to open range on abatement of unlawful inclosures, and 12,065.61 acres were restored through suits to cancel patents fraudulently acquired, brought by the Department of Justice on the recommendation of this office based on special agents' reports.

Special agents have personally examined and reported on 22,077 entries, 7,814 of which were adverse and 12,734 were favorable. Included in this number are 1,429 reports on lands within known coal areas, of which 285 were adverse and 1,144 were favorable, 2,610 reports on entries within reclamation projects, of which number 192 were adverse and 2,428 were favorable. In addition to the reports of special agents, 307 adverse reports and 603 favorable reports have been received from forest officers on entries within national forests. Reports on applications for rights of way over public domain for reservoirs, canals, ditches, etc., were rendered on 229 such applications, 41 of which were adverse and 188 were favorable. Reports have been received on 74 state segregation lists, under the Carey Act, on which final action has not yet been had. The bona fides of applications for surveys have been investigated, and agents have reported adversely on 49 and favorably on 186, making a total of 235 such investigations completed.

Twenty-seven civil suits were recommended for the setting aside of grants of rights of way over the public domain for reservoirs, canals, ditches, etc. Investigations are now in progress, involving all such grants heretofore approved for such purposes, with a view of bringing civil action against all grantees where the evidence shows misuse, nonconstruction, or abandonment of such privileges.

During the year 304 civil suits have been won and 71 have been lost, of which 99 timber-trespass cases were won, recovering $43,270.09 and 19 were lost; 74 suits to vacate patents were won, restoring 12,065.61 acres to the public domain, and 47 such suits were lost; and 119 cases of unlawful inclosure were won, restoring 397,801.20 acres heretofore held under fence unlawfully.

At the close of this fiscal year 843 cases wherein criminal prosecution was recommended were pending before the Department of Justice, and during the year 47 cases were referred to the Department of Justice requesting that criminal actions be brought against the offenders in cases of timber trespass, conspiracy, perjury, etc.

Of the criminal cases closed during the year, 67 were convictions for timber trespass, of which 9 were prison sentences, and $3,400 in fines were assessed by the court and paid; 41 were convictions for conspiracy, 6 of which were prison sentences, and $60,750 in fines were assessed, of which $54,400 were paid; 1 conviction for perjury and prison sentence; 40 were convictions for maintaining unlawful inclosures on public domain, of which 2 were prison sentences, and $6,600 in fines were assessed and paid; and 13 convictions were secured in cases of embezzlement, etc., making a total of 162 convictions secured, in 25 of which prison sentences were given.

STATISTICS.

For some time past I have been fully aware that one of the great deficiencies in this bureau is the nonexistence of a division of statistics. Congress, in the sundry civil bill last session, authorized the employment of 25 more clerks. It seemed, however, the proper procedure to assign to these positions men who were employed in this office, under the appropriation for protecting public lands, for the purpose of bringing up the work to be performed under that head. Especially did this seem fitting, inasmuch as the appropriation for the protection of public lands is less this year by $250,000 than it was last year. The stress in the office is such that every clerk is fully occupied in an attempt to bring the work up to date and maintain it in that status. The belief that the amount of work received would decrease has not yet materialized; and it has been found impossible, therefore, to detail five or six clerks from work on which they are now engaged to this important statistical work. This I very much regret, as I realize that we have no adequate method for the compilation of the important statistics which pass through this office, and therefore, in many cases, it is impossible to meet the requests for information as promptly as presented. As soon as relief is afforded, if within the next fiscal year, a detail will be made of clerks for the purpose of putting this work upon a proper footing. However, the trouble which we experience in this office is that the work of every day is such as to demand the energy of every employee, and there is no opportunity for starting any work except that which is absolutely called for in the determination of the cases presented for adjudication.

SURVEYING.

Steps have been taken to inaugurate the new method of surveying, and it is confidently expected that by January 1, 1911, there will have been accomplished work of sufficient magnitude to thoroughly demonstrate the wisdom of the change in procedure. It is anticipated that by that time there will be in the offices of the surveyors-general for consideration field notes of work performed in volume greater than that which would have taken two years to bring as near completion under the old system.

It is impossible to state now whether there will be money saved, but it is expected that the work performed will cost proportionately less than it would under the contract system. It will be necessary, however, to call upon Congress to permit the expenditure of some of the moneys appropriated for the completion of surveys in the offices of the surveyors-general, this being in addition to the regular moneys appropriated therefor. The reason is very plain: The regular appropriations for work in the offices of the surveyors-general were based upon the usual amount of money laid out in contracts in the year preceding that in which the appropriation for office work was made. This work will still have to be performed, the contracts having been let during the fiscal year ended June 30, 1910, the work on which, together with the work on contracts entered into in prior years, will be presented to the surveyors-general for their office consideration this fall and winter, leaving no moneys to perform the office work on the surveys which will have been consummated during the months of the first part of this fiscal year under the new procedure, the field notes of a great number of which will be in the offices of the surveyors-general by the first of the calendar year 1911.

In view of the fact that a great number of deputy surveyors will not have finished their contract work before 1911, it will be impossible to secure the number of surveyors necessary to inaugurate and complete all the work capable of being paid for under the appropriation for the fiscal year ending June 30, 1911; and request, therefore, will be made of Congress to authorize continuance of the use of the moneys appropriated for this year until such time as they may be exhausted.

There is being shown the greatest expedition in the outfitting of the parties and in placing them in the field.[a]

There is no question but that the interests of the public will be very much better served by the new procedure adopted than by the old system. The saving in time alone will amply justify the change. It is expected, in addition, that better work will be done and money saved.

SURFACE LAW.

Of the important legislation passed by the last Congress affecting the public lands, that under which the homesteader can secure a surface patent to his land, where the land is underlain by coal, will prove of the greatest benefit; and it will, when its provisions are thoroughly understood and its operation properly inaugurated, obviate the delay which is now experienced and also the necessary contest over the existence or nonexistence of coal upon any particular tract of land, under which coal deposits are alleged to exist. The homesteader will secure that which he seeks (an agricultural entry upon which he can raise his crops), and the Government will reserve for future disposition the coal which may be found in the ground beneath. The provisions of the act of March 3, 1909, opened the way for a proper understanding of the new act, and it is felt that there will be little difficulty in its correct administration. There have been received in this office several applications to purchase the coal deposits in cases where the surface patent has already been granted under the provisions of this act.

CONTINGENT EXPENSES.

The amount allowed for contingent expenses, for the proper conduct of this office, has always been too little. There has been a marked improvement in the physical condition of the office during the last year; but there are many necessary improvements which will be carried out if a larger appropriation for contingent expenses could be obtained. The land offices throughout the country, except in public buildings, are inadequately furnished; and a visit to the offices in Washington City will show that in a very large percentage of the rooms occupied by the employees the furniture is out of date and insanitary, and there exists no covering of any kind upon the floors, which, in very many cases, consist of stone flags. The completion of the stack in the center of the court yard has made a great difference in the rooms through which the old chimney used to run. They are now used without the great discomfort which was incident to their use before.

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[a] At the time of writing (August 31, 1910) there have been organized, and are now working in the field, 62 parties.

PRIVATE LAND CLAIMS.

These claims for the most part have their origin in some form of concession from or settlement under a foreign government before the acquisition by the United States of the territory in which they are situated. The claims have been recognized and confirmed by the various boards of commissioners acting under authority of Congress, by the courts, and by acts of Congress. The greater number of these claims are embraced in reports of various boards of commissioners published in the American State Papers.

The force of this office working on private land claims has dwindled from a division to one clerk, and only a portion of the time of this clerk is taken up with the work. The work now consists of preparing for patent such cases as remain unpatented, correspondence as to the status of the various claims, and at various times reports upon bills introduced in Congress for the relief of private land claimants. There remain about 5,000 confirmed private land claims on which patents have not issued, but which are entitled to patents. These claims, for the most part, were confirmed many years ago. It is the practice of this office to issue patents on these claims only when patents are applied for. Applications for patents have been coming in very slowly, and at the present rate of progress it will take years to close out this work. No effort has been made to clear this work up and issue patents on all of the claims remaining unpatented for the reason that there has always been work of more current nature which demanded the attention of the clerical force of this office and for the reason that there was no general demand that this be done. It is now thought that this work may be obviated by legislation. By sections 1 and 2 of the act of June 6, 1874 (18 Stat., 62), the necessity for the issuance of patents on all confirmed private land claims in Missouri was obviated, such act granting to the respective owners of the equitable titles to such claims the full legal title as fully and completely as could be done by patent. It would lift a burden from this office if the above act should be amended or reenacted so as to apply to the States of Alabama, Arkansas, Florida, Illinois, Indiana, Louisiana, Michigan, and Mississippi. The confirmed claims in these States embrace comparatively small areas, the claimants owe the

United States no money for surveying the claims, and nothing remains to be done by the claimants to entitle them to patents. In issuing such patents this office performs a purely ministerial duty, requiring no adjudication of title. This office could just as well be relieved by legislation of the necessity of issuing these patents and the enactment of the legislation suggested is earnestly recommended. The enactment of such legislation would bring the work of issuing patents on private land claims practically up to date, as there would then remain a comparatively small number of confirmed grants requiring patents, which grants, embracing larger areas than those before mentioned, are mostly in New Mexico, and remain unpatented for the reason that the claimants have not reimbursed the United States on account of surveying and platting the claims, as is required by law as a condition precedent to the issuance of patent.

NATIONAL FORESTS.

Since the issuance of the last annual report, 6 national forests have been enlarged and 26 reduced under the act of June 4, 1897 (30 Stat., 36), and the Las Animas National Forest was consolidated with the San Isabel National Forest, Colorado. The Blackfeet National Forest, in Montana, was reduced by the act of May 11, 1910 (36 Stat., 354), establishing the Glacier National Park, and by executive order of April 19, 1910, a portion of the Cheyenne National Forest, Wyoming, was transferred to the exclusive control of the War Department as a military reserve. There are now 149 national forests, embracing 192,931,197 acres. The decrease in area of national forests since the beginning of the fiscal year is estimated at 1,574,128 acres.

On February 7, 1910, a reclassification of lands in the national forests, with a view to excluding therefrom lands not forest in character and not necessary to protect the headwaters of streams, was agreed upon by the Department of Agriculture and your department and approved by the President. Such reclassification is now in progress. Since February 7, 1910, 954,660 acres have been eliminated from national forests thereunder and the unappropriated public lands therein restored to settlement and entry.

Areas temporarily withdrawn but not needed for forestry purposes are released from withdrawal upon the recommendation of the Secretary of Agriculture as rapidly as possible. Since the issuance of the last annual report, 1,345,799 acres have been released from such withdrawal, and 963,391 acres eliminated from national forests and opened to settlement and entry.

During the fiscal year 149 administrative site withdrawals have been revoked, embracing 28,595 acres. There are now 25 rights of way for wagon roads and 4,127 administrative sites withdrawn for use by the Forest Service in the administration of the national forests, embracing 593,283 acres, 174 sites, and 23,941 acres being near and 3,953 sites and 569,342 acres in the national forests.

INDIAN RESERVATION OPENINGS.

Openings have been held for lands in five Indian reservations during the year, at which the following number of applications were presented: For Cheyenne River lands in South Dakota, 81,456; Coeur d'Alene lands in Idaho, 105,556; Flathead lands in Montana, 81,363; Spokane lands in Washington, 99,829; and for Standing Rock lands in South Dakota, 81,456. Applications for the first and last mentioned lands were combined. These reservations embrace an approximate total area of 4,263,000 acres, including allotted, reserved, and state school lands.

For the purpose of lessening the cost of these openings, both to the Indians and to the applicants, a new departure was made in the plan of registration in that but two registrations were held, one for the Coeur d'Alene, Flathead, and Spokane lands, and one for the Cheyenne River and Standing Rock lands, instead of holding a separate registration for each reservation, as has heretofore been done. This change, and the simplified methods adopted, resulted in the opening of the five reservations at a cost to the Indians which was but little larger than the former cost of opening a single reservation, and it afforded each applicant an opportunity to register for lands in one or all of the reservations then being opened at the same time.

Twenty-six town sites in Indian reservations have been surveyed and platted during the year, and lots have been sold at prices largely above their appraised value in 13 of these town sites. The other town sites will be sold in the future.

NATIONAL MONUMENTS.

Under authority of the act approved June 8, 1906, the President, during the year, by formal proclamations prepared in this bureau, enlarged and established the boundaries of the Natural Bridges National Monument, Utah, and created, from lands under control of the United States, the following national monuments:

Rainbow Bridge, Utah, a natural arch, resembling a rainbow, 309 feet high and 278 feet in span, the effect of eccentric erosion, lying south of the above monument and near the Arizona line.

The Mukuntuweap, Utah, embracing the gorge of Zion Creek, having smooth, vertical, sandstone precipices from 800 to 2,000 feet deep, with magnificent waterfalls, and having a tropic growth within the limits of the gorge.

Shoshone Cavern, Wyoming, an underground cavern containing vaulted chambers of large size.

Gran Quivira, New Mexico, an important early Spanish church ruin, with numerous Indian pueblo ruins of the vicinity.

The Sitka National Monument, Alaska, noted as being the decisive battle ground of the Russian conquest of Alaska, in 1804, having numerous totem poles, which contain the genealogical history of the several clans of Eskimos.

The Oregon Caves National Monument is within the Siskiyou National Forest, and is under the jurisdiction of the Forest Service.

There is great need of funds for the proper protection and administration of such of the national monuments, created out of the public lands, as consist of or include within their boundaries historic and prehistoric ruins or other objects easily injured or despoiled by vandals and unauthorized collectors of curios for sale or exhibition for a fee. The former departmental estimate of $5,000 which has failed to receive the approval of Congress should, by all means, be renewed.

On September 7, 1909, 160 acres of land were temporarily withdrawn in Oregon for the proposed Fort Rock National Monument, and 13,098 acres were withdrawn in Colorado, December 24, 1909, as proposed Monument Canyon National Park or National Monument.

CHIPPEWA LOGGING, MINNESOTA.

The past season closed the seventh year of logging on ceded Chippewa lands in Minnesota, under the act of June 27, 1902 (32 Stat., 400), and acts amendatory thereof, which work is done under the direction of this office. There were logged the past year 88,503,880 feet of timber, cut from 187 different sections, of the total value of $553,005.42. During the preceding year the amount cut aggregated 94,028,725 feet, valued at $601,091.18.

There have been seven different sales of timber held, and the logging is completed in three of these sales and is nearly completed in the remainder. There is probably 100,000,000 feet more timber to be logged under existing contracts.

The following statement shows the estimated amount of timber sold and the estimated value thereof at the different sales, and the amount actually cut, the price paid for the timber, and the average price paid for each sale, viz:

Proceeds of Chippewa logging.

Date of sale.	Government estimate.	Value.	Logged.	Price paid.
	M feet B. M.		*M feet B. M.*	
March 2, 1909	13,636	$68,559.70	26,816	$138,326.20
December 5, 1903	223,921	1,434,071.68	308.637	1,872,364.11
December 28, 1903	169,308	1,218,132.02	296,155	2,097,872.08
November 15, 1904	146,560	932.320.12	168,113	1,074,658.30
November 17, 1904	9,718	55,128.45	18,786	97.524.77
July 17, 1907	2,056	18,705.05	3,754	34,160.52
March 15, 1910	2,169	15,378.69	2,189	14,836.06
Trespass			2,026	16,753.13
Interest, etc				291.02
Total	567,368	3,742,295.71	826,476	5,346,786.19

The average price realized per thousand feet has been $6.46.

The trespass statement includes trespass on Indian allotments and state swamp selections.

The percentage of white pine has been nearly 64½ per cent, and the average number of logs per thousand has been 10½.

The total expense of logging the past year has been $30,616.47, while the total cost to date is $224,915.56. The average cost of superintending, scaling, and recording has been 26 cents per thousand feet.

Another sale of timber on ceded Chippewa lands is advertised to take place on September 15, 1910. This will include all the unsold timber on said lands. There will be offered for sale 90 per cent of the timber on 80,414.29 acres of lands inside the Minnesota National Forest, estimated to contain 23,365,000 feet of white pine and 221,118,000 feet of Norway; and all of the pine timber on 72,435.56 acres outside of said national forest, the estimate of the timber thereon being 47,365,000 feet of white pine and 85,208,000 feet of Norway.

HOMESTEAD ENTRIES IN FOREST RESERVES.

During the past year notices were issued in 1,770 lists by which approximately 177,000 acres of agricultural lands in national forests were opened to settlement and entry under the homestead laws, in accordance with the provisions of the act of June 11, 1906 (34 Stat., 233).

POWER-SITE RESERVES.

All existing temporary power-site withdrawals, heretofore made in aid of proposed legislation affecting the disposal of the water-power sites on the public domain, have been ratified, confirmed, and continued in full force and effect and the lands have been reserved for water-power sites, under the designation of power-site reserves, by executive orders issued in pursuance of the act of June 25, 1910 (Public, No. 303).

These reserves, embracing approximately 1,500,000 acres of land along water courses in twelve States and Territories, are now 149 in number, and the lands therein are subject to all of the provisions, limitations, exceptions, and conditions of the act mentioned.

SALES OF ABANDONED MILITARY RESERVATIONS.

Notices have been issued of the sale of abandoned military reservations at public offering for cash under the act of July 5, 1884 (23 Stat., 103), as follows:

Camp Bowie, Ariz., 10,415.96 acres, appraised at $15,920.38, on October 10, 1910; Fort Davis, Tex., 290.09 acres, appraised at $2,970, on November 21, 1910.

LEGISLATION.

All of the recommendations as to needed legislation made in my report for last year are here repeated with emphasis, except such as relate to laws enacted at the last session of Congress, and I further recommend the following legislation not hereinbefore mentioned:

The provisions of the act providing for agricultural entries on coal lands should be extended to the States of Alabama and Minnesota.

FRED DENNETT, *Commissioner.*

The SECRETARY OF THE INTERIOR.

STATISTICS RELATING TO THE DISPOSITION OF THE PUBLIC DOMAIN.

Area of States and Territories.

[Based upon careful joint calculations made in the General Land Office, the Geological Survey, and the Bureau of the Census.]

State or Territory.	Land surface.		Water surface.		Total areas.	
	Sq. m.	*Acres.*	*Sq. m.*	*Acres.*	*Sq. m.*	*Acres.*
Alabama	51,279	32,818,560	719	460,160	51,998	33,278,720
Arizona	113,840	72,857,600	116	74,240	113,956	72,931,840
Arkansas	52,525	33,616,000	810	518.400	53,335	34,134,400
California	156,092	99,898,880	2,205	1,411,200	158,297	101,310,080
Colorado	103,658	66,341,120	290	185,600	103,948	66,526,720
Connecticut	4,820	3,084,800	145	92,800	4,965	3,177,600
Delaware	1,965	1,257,600	405	259,200	2,370	1,516,800
District of Columbia	60	38,400	10	6,400	70	44,800
Florida	54,861	35,111,040	3,805	2,435,200	58,666	37.546,240
Georgia	58,725	37,584,000	540	345,600	59,265	37,929,600
Idaho	83,779	53,618,560	534	341,760	84,313	53,960,320
Illinois	56,002	35,841,280	663	424,320	56,665	36,265,600
Indiana	35,885	22,966,400	469	300.160	36,354	23,266,560
Iowa	55,586	35,575,040	561	359,040	56,147	35,934,080
Kansas	81,774	52.335,360	384	245,760	82,158	52,581,120
Kentucky	40,181	25,715.840	417	266,880	40,598	25,982,720
Louisiana	45,409	29,061,760	3,097	1,982,080	48,506	31,043,840
Maine	29,895	19,132.800	3,145	2,012.800	33,040	21,145,600
Maryland	9,941	6,362,240	2,386	1,527,040	12,327	7,889,280
Massachusetts	8,039	5,144,960	227	145,280	8,266	5,290,240
Michigan	57,480	36,787,200	500	320,000	57,980	37,107,200
Minnesota	80,858	51,749,120	3,824	2,447,360	84,682	54,196,480
Mississippi	46,362	29,671,680	503	321,920	46,865	29,993,600
Missouri	68,727	43,985,280	693	443,520	69,420	44,428,800
Montana	145,776	93,296,640	796	509,440	146,572	93,806,080
Nebraska	76,808	49,157.120	712	455,680	77,520	49,612,800
Nevada	109,821	70,285,440	869	556,160	110,690	70,841,600
New Hampshire	9,031	5,779,840	310	198,400	9,341	5,978,240
New Jersey	7,514	4,808,960	710	454,400	8.224	5,263,360
New Mexico	122,503	78,401,920	131	83,840	122,634	78,485,760
New York	47.654	30,498,560	1,550	992,000	49,204	31,490,560
North Carolina	48,740	31,193,600	3,686	2,359,040	52,426	33,552,640
North Dakota	70.183	44,917,120	654	418.560	70.837	45,335,680
Ohio	40,740	26.073.600	300	192,000	41,040	26,265,600
Oklahoma	69,414	44,424,960	643	411,520	70,057	44,836,480
Oregon	95,607	61,188,480	1,092	698.880	96,699	61,887,360
Pennsylvania	44,832	28,692,480	294	188,160	45,126	28,880,640
Rhode Island	1,067	682,880	181	115.840	1,248	798,720
South Carolina	30,495	19,516,800	494	316,160	30,989	19,832,960
South Dakota	76,868	49,195.520	747	478.080	77.615	49,673,600
Tennessee	41,687	26,679,680	335	214.400	42.022	26,894,080
Texas	262.398	167,934,720	3,498	2,238.720	265,896	170,173,440
Utah	82,184	52,597,760	2,806	1,795,840	84,990	54,393,600
Vermont	9,124	5,839,360	440	281,600	9,564	6,120,960
Virginia	40,262	25,767.680	2,365	1,513,600	42,627	27,281,280
Washington	66,836	42,775,040	2,291	1,466,240	69.127	44,241,280
West Virginia	24,022	15,374,080	148	94,720	24,170	15.468,800
Wisconsin	55,256	35,363.840	810	518,400	56,066	35,882,240
Wyoming	97,594	62,460,160	320	204,800	97.014	62,664,960
	2,974,159	1,903.461,760	52,630	33,683,200	3,026,789	1,937,144,960
Alaska					590,884	378,165,760
Guam					210	134,400
Hawaii					6,449	4,127,360
Panama Canal strip					474	303,360
Philippine Islands					115,026	73,616,640
Porto Rico					3,435	2,198,400
Tutuila Group, Samoa					77	49,280
Total					3,743,344	2,395,740,160

Owing to their location adjoining the Great Lakes, the States enumerated below contain approximately an additional number of square miles as follows: Illinois, 1,674 square miles of Lake Michigan; Indiana, 230 square miles of Lake Michigan; Michigan, 16,653 square miles of Lake Superior, 12,922 square miles of Lake Michigan, 9,925 square miles of Lake Huron, and 460 square miles of lakes St. Clair and Erie; Minnesota, 2,514 square miles of Lake Superior; New York, 3,140 square miles of lakes Ontario and Erie; Ohio, 3,443 square miles of Lake Erie; Pennsylvania, 891 square miles of Lake Erie; Wisconsin, 2,378 square miles of Lake Superior and 7,500 square miles of Lake Michigan.

In addition to the water areas noted above, California claims jurisdiction over all Pacific waters lying within 3 English miles of her coast; Oregon claims jurisdiction over a similar strip of the Pacific Ocean 1 marine league in width between latitude 42° north and the mouth of the Columbia River; and Texas claims jurisdiction over a strip of Gulf water 3 leagues in width, adjacent to her coast and between the Rio Grande and the Sabine River.

United States district land offices.

Location.	Established.	Opened.
Alabama:		
Montgomery	July 10, 1832	Jan. 1, 1834
Alaska:		
Fairbanks	May 14, 1907	July 1, 1907
Juneau	Apr. 2, 1902	June 20, 1902
Nome	May 14, 1907	July 1, 1907
Arizona:		
Phoenix	July 25, 1905	Oct. 2, 1905
Arkansas:		
Camden	Jan. 10, 1871	Mar. 20, 1871
Harrison	July 14, 1870	Feb. 27, 1871
Little Rock	Feb. 17, 1818	Sept. 1, 1821
California:		
Eureka	Mar. 29, 1858	July 24, 1858
Independence	Apr. 22, 1886	Mar. 22, 1887
Los Angeles	June 12, 1869	Sept. 22, 1869
Oakland	Jan. 16, 1857	Nov. 3, 1857
Redding	May 13, 1890	July 15, 1890
Sacramento	July 26, 1866	Nov. 12, 1867
Susanville	Feb. 10, 1871	Mar. 2, 1871
Visalia	Mar. 29, 1858	July 10, 1858
Colorado:		
Del Norte	June 20, 1874	Mar. 22, 1875
Denver	June 4, 1864	Aug. 15, 1864
Durango	Apr. 20, 1882	Oct. 2, 1882
Glenwood Springs	July 3, 1884	Nov. 10, 1884
Hugo	Feb. 6, 1890	Sept. 7, 1890
Lamar	Aug. 4, 1886	Jan. 3, 1887
Leadville	Apr. 5, 1879	July 1, 1879
Montrose	Jan. 4, 1888	Sept. 1, 1888
Pueblo	May 27, 1870	Jan. 16, 1871
Sterling	Feb. 6, 1890	Aug. 1, 1890
Florida:		
Gainesville	June 8, 1872	Apr. 30, 1873
Idaho:		
Blackfoot	Sept. 3, 1886	Nov. 16, 1886
Boise	July 26, 1866	Jan. 13, 1868
Coeur d'Alene	July 14, 1884	Dec. 21, 1885
Hailey	Jan. 24, 1883	July 16, 1883
Lewiston	July 26, 1866	Sept. 26, 1871
Kansas:		
Dodge City	Dec. 20, 1893	Feb. 3, 1894
Topeka	July 24, 1861	Sept. 10, 1861
Louisiana:		
Natchitoches	July 7, 1838	Oct. 12, 1838
New Orleans	Mar. 3, 1811	Jan. 1, 1812
Michigan:		
Marquette	Mar. 19, 1857	July 14, 1857
Minnesota:		
Cass Lake	Apr. 1, 1903	July 1, 1903
Crookston	Apr. 29, 1878	May 5, 1879
Duluth	Mar. 27, 1862	Jan. 15, 1863
Mississippi:		
Jackson	June 23, 1836	July 25, 1836
Missouri:		
Springfield	June 26, 1834	Oct. 4, 1838
Montana:		
Billings	Feb. 5, 1906	July 2, 1906
Bozeman	June 20, 1874	Oct. 5, 1874
Glasgow	Feb. 25, 1907	June 1, 1907
Great Falls	May 8, 1902	Aug. 1, 1902
Havre	Mar. 15, 1910	July 1, 1910
Helena	Mar. 2, 1867	Apr. 27, 1867
Kalispell	Mar. 2, 1897	July 1, 1897
Lewistown	Apr. 1, 1890	Nov. 26, 1890
Miles City	Apr. 30, 1880	Oct. 19, 1880
Montana—Cont'd.		
Missoula	Apr. 1, 1890	Apr. 20, 1891
Nebraska:		
Alliance	Apr. 16, 1890	July 1, 1890
Broken Bow	do	July 7, 1890
Lincoln	July 7, 1868	Sept. 7, 1868
North Platte	Apr. 22, 1872	Apr. 11, 1873
O'Neill	Apr. 7, 1888	July 16, 1888
Valentine	June 19, 1882	July 7, 1883
Nevada:		
Carson City	July 2, 1862	Mar. 1, 1864
New Mexico:		
Clayton	Dec. 18, 1888	Aug. 12, 1889
Fort Sumner	June 22, 1910	Oct. 1, 1910
Las Cruces	Mar. 10, 1883	May 1, 1883
Roswell	Mar. 1, 1889	Dec. 9, 1889
Santa Fe	May 24, 1858	Nov. 24, 1858
Tucumcari	Mar. 16, 1908	July 1, 1908
North Dakota:		
Bismarck	Apr. 24, 1874	Oct. 12, 1874
Devils Lake	Mar. 3, 1883	Aug. 24, 1883
Dickinson	Mar. 16, 1904	July 1, 1904
Fargo	Dec. 29, 1873	Sept. 1, 1874
Minot	Sept. 26, 1890	Oct. 1, 1891
Williston	Apr. 26, 1906	Aug. 1, 1906
Oklahoma:		
El Reno	July 4, 1901	Aug. 6, 1901
Guthrie	Mar. 3, 1889	Apr. 22, 1889
Lawton	July 4, 1901	Aug. 6, 1901
Woodward	Aug. 25, 1893	Sept. 16, 1893
Oregon:		
Burns	June 1, 1889	Sept. 2, 1889
La Grande	July 3, 1866	Nov. 15, 1867
Lakeview	June 6, 1877	Aug. 6, 1877
Portland	Aug. 24, 1854	Jan. 1, 1855
Roseburg	Sept. 15, 1859	Jan. 3, 1860
The Dalles	Jan. 11, 1875	June 1, 1875
Vale	Mar. 15, 1910	July 1, 1910
South Dakota:		
Aberdeen	Mar. 23, 1882	Oct. 2, 1882
Bellefourche	Feb. 6, 1909	July 1, 1909
Chamberlain	Feb. 10, 1890	Apr. 3, 1890
Gregory	July 14, 1880	Jan. 3, 1882
Lemmon	May 29, 1908	Aug. 1, 1908
Pierre	Feb. 10, 1890	May 12, 1890
Rapid City	Dec. 13, 1888	Jan. 15, 1889
Utah:		
Salt Lake City	July 16, 1868	Nov. 1, 1868
Vernal	May 9, 1905	July 1, 1905
Washington:		
North Yakima	Apr. 11, 1885	Apr. 24, 1885
Olympia	May 16, 1890	Oct. 1, 1890
Seattle	June 27, 1887	Dec. 3, 1887
Spokane	June 23, 1883	Oct. 1, 1883
Vancouver	May 16, 1860	July 3, 1861
Walla Walla	Mar. 3, 1871	July 17, 1871
Waterville	May 16, 1890	Nov. 6, 1890
Wisconsin:		
Wausau	June 19, 1872	Aug. 19, 1872
Wyoming:		
Buffalo	Mar. 3, 1887	May 1, 1888
Cheyenne	Feb. 5, 1870	Aug. 10, 1870
Douglas	Apr. 23, 1890	Nov. 1, 1890
Evanston	Aug. 9, 1876	Aug. 13, 1877
Lander	Apr. 23, 1890	Nov. 8, 1890
Sundance	Apr. 3, 1890	Oct. 27, 1890

NOTE.—The land offices in Ohio, Indiana, Illinois, and Iowa are abolished, and the vacant tracts of public lands in those States are subject to entry and location at the General Land Office, Washington, D. C.

List of offices of United States surveyors-general.

Location.	Established.
Alaska: Juneau	May 17, 1884
Arizona: Phoenix	Feb. 24, 1863
California: San Francisco	Mar. 3, 1851
Colorado: Denver	Feb. 28, 1861
Idaho: Boise	June 29, 1866
Montana: Helena	July 2, 1864
Nevada: Reno	July 4, 1866
New Mexico: Santa Fe	Mar. 2, 1867
Oregon: Portland	July 17, 1854
South Dakota: Huron	Apr. 10, 1890
Utah: Salt Lake City	July 16, 1868
Washington: Olympia	July 17, 1854
Wyoming: Cheyenne	Feb. 5, 1870

Field division headquarters of special agents of General Land Office.

Field division:	
1	Portland, Oreg.
2	San Francisco, Cal.
3	Boise, Idaho.
4	Helena, Mont.
5	Denver, Colo.
6	Los Angeles, Cal.
7	Cheyenne, Wyo.
8	Duluth, Minn.
9	Little Rock, Ark.
10	Salt Lake City, Utah.
11	Gainesville, Fla.
12	Santa Fe, N. Mex.

Average number of employees of the General Land Office.

In General Land Office, Washington, D. C	530
In 13 surveyors-general offices	182
In 106 district land offices	436
In the field	252
Total	1,400

Final homestead entries from the passage of the homestead act to June 30, 1910.

Fiscal year ended June 30—	Number.	Acres.
1868	2,772	355,086.04
1869	3,965	504,301.97
1870	4,041	519,727.84
1871	5,087	629,162.25
1872	5,917	707,409.83
1873	10,311	1,224,890.98
1874	14,129	1,585,781.56
1875	18,293	2,068,537.74
1876	22,530	2,590,552.81
1877	19,900	2,407,828.19
1878	22,460	2,662,980.82
1879	17,391	2,070,842.39
1880	15,441	1,938,234.89
1881	15,077	1,928,204.76
1882	17,174	2,219,453.80
1883	18,998	2,504,414.51
1884	21,843	2,945,574.72
1885	22,066	3,032,679.11
1886	19,356	2,663,531.83
1887	19,866	2,749,037.48
1888	22,413	3,175,400.64
1889	25,549	3,681,708.80
1890	28,080	4,060,592.77
1891	27,686	3,954,587.77
1892	22,822	3,259,897.07
1893	24,204	3,477,231.63
1894	20,544	2,929,947.41
1895	20,922	2,980,809.30
1896	20,099	2,790,242.55
1897	20,115	2,778,404.20
1898	22,281	3,095,017.75
1899	22,812	3,134,149.44
1900	25,286	3,477,842.71
1901	37,568	5,241,120.76
1902	31,627	4,342,747.70
1903	26,373	3,576,964.14
1904	23,932	3,232,716.75
1905	24,621	3,419,387.15
1906	25,546	3,526,748.58
1907	26,485	3,740,567.71
1908	29,636	4,242,710.59
1909	25,510	3,699,466.79
1910	23,253	3,795,862.89
Total	873,981	118,920,158.57

Timber and stone entries from the passage of the act of June 3, 1878, to June 30, 1910.

State or Territory.	Number of entries.	Acres.	Amount received.	State or Territory.	Number of entries.	Acres.	Amount received.
Alabama	181	15,478.50	$39,788.10	Nebraska	1	97.20	$243.00
Arizona	3	200.00	500.00	Nevada	49	6,222.32	15,558.19
Arkansas	2,059	226,272.79	569,059.10	North Dakota	80	8,446.90	21,507.25
California	19,362	2,737,763.51	6,855,226.10	Oklahoma	1	40.00	100.00
Colorado	2,673	332,134.54	834,872.59	Oregon	25,115	3,601,114.74	9,027,455.09
Florida	719	83,085.92	210,799.33	South Dakota	478	54,060.45	136,377.44
Idaho	7,076	956,223.26	2,438,921.95	Utah	15	1,401.15	3,592.94
Iowa	3	119.36	298.40	Washington	15,623	2,087,701.09	5,238,770.37
Louisiana	1,523	135,356.61	338,994.91	Wisconsin	1,047	76,929.36	192,493.90
Michigan	1,555	130,584.13	328,329.42	Wyoming	3,093	350,669.08	880,370.99
Minnesota	10,724	1,323,953.19	3,324,953.41				
Mississippi	75	5,345.27	13,363.37	Total	96,005	12,727,004.52	31,962,004.47
Montana	4,550	593,805.15	1,490,428.60				

Desert-land entries from the passage of the act of March 3, 1877, to June 30, 1910.

State or Territory.	Entries.		Area.		Amount.		
	Original.	Final.	Original.	Final.	Original.	Final.	Total.
			Acres.	*Acres*			
Arizona	5,248	832	1,465,435.25	243,486.14	$414,253.20	$234,958.91	$649,212.11
California	12,264	2,233	2,917,211.97	466,466.82	744,320.94	489,505.04	1,233,825.98
Colorado	12,300	1,569	2,355,872.63	271,079.50	589,441.85	270,923.18	860,365.03
Dakota Territory	35	1	20,021.00	300.00	5,005.25	300.00	5,305.25
Idaho	12,874	3,560	2,355,587.09	631,856.86	588,671.30	630,603.60	1,219,274.90
Montana	24,992	9,782	4,896,725.03	1,892,490.80	1,232,063.39	1,903,332.82	3,135,396.21
Nevada	1,162	176	286,411.70	43,072.14	71,833.99	43,084.66	114,918.65
New Mexico	8,343	1,019	1,653,782.06	241,789.51	415,252.63	241,402.41	656,655.04
North Dakota	510	98	84,302.21	16,273.55	21,075.76	16,338.29	37,414.05
Oregon	4,628	1,012	807,073.00	176,832.21	201,597.40	176,785.74	378,383.14
South Dakota	2,962	240	474,489.32	44,232.23	117,862.62	44,232.33	162,094.95
Utah	6,335	1,624	1,149,244.76	272,423.41	294,103.55	278,206.61	572,310.16
Washington	4,058	367	713,770.08	49,891.33	189,499.43	53,640.81	243,140.24
Wyoming	14,131	4,844	3,259,322.49	1,123,598.30	821,690.71	1,132,352.95	1,954,043.66
Total	109,842	27,357	22,439,248.59	5,473,792.80	5,706,672.02	5,515,667.35	11,222,339.37

Timber-culture entries from the passage of the act of March 3, 1873, to June 30, 1910.

State or Territory.	Entries.			Area.			Amount.			
	Original.	Final.	Commuted.	Original.	Final.	Commuted.	Fees (original).	Fees (final).	Purchase money.	Total.
				Acres.	*Acres.*	*Acres.*				
Arizona	1,152	52	74	164,806.63	7,149.14	10,223.42	$15,224.00	$208.00	$12,779.26	$28,211.26
Arkansas	41	4	1	4,817.14	480.00	40.00	489.00	16.00	44.00	549.00
California	8,264	480	567	1,163,922.03	63,411.58	78,728.76	110,014.00	1,904.00	98,499.13	210,417.13
Colorado	27,864	3,789	660	4,332,922.19	585,243.30	98,179.52	384,938.00	15,154.00	122,722.36	522,814.36
Dakota Territory	77,446	1,309	....	12,055,642.98	185,467.24	....	1,074,862.44	4,984.79	....	1,079,847.23
Florida	3	....	....	480.00	....	....	42.00	....	....	42.00
Idaho	4,054	341	236	533,957.49	40,436.03	28,244.51	51,447.38	1,369.50	35,305.93	88,122.81
Iowa	1,044	390	39	81,378.95	31,987.87	2,292.17	11,838.83	1,560.00	2,965.22	16,364.05
Kansas	64,345	12,886	961	9,702,653.36	2,005,831.35	142,931.88	883,275.56	51,529.03	178,650.55	1,113,455.14
Louisiana	713	87	42	101,695.31	11,937.97	5,856.85	9,651.55	348.00	7,299.54	17,299.09
Minnesota	15,268	2,924	389	2,099,046.55	373,580.90	40,261.29	207,154.98	11,712.00	61,543.77	280,410.75
Montana	3,595	407	225	486,638.66	56,019.73	29,044.43	46,162.00	1,632.00	36,506.32	84,300.32
Nebraska	59,127	16,870	1,250	8,876,351.20	2,546,696.04	187,371.35	813,382.33	67,776.73	234,332.61	1,115,491.67
Nevada	46	1	....	6,292.50	160.00	....	614.00	4.00	....	618.00
New Mexico	1,612	91	55	230,316.54	12,931.60	7,837.25	21,294.00	363.00	9,796.56	31,453.56
North Dakota	1,699	7,897	781	263,123.95	1,226,005.66	120,524.80	23,446.00	31,576.83	150,661.75	205,684.58
Oregon	7,126	1,501	252	1,051,235.21	224,385.60	35,902.61	95,821.00	6,024.00	44,878.37	146,717.37
South Dakota	2,925	13,764	821	449,583.61	2,124,753.58	121,730.98	40,151.00	55,036.00	152,082.89	247,269.89
Utah	1,476	138	89	179,690.74	15,556.26	10,157.44	17,925.00	552.00	12,696.85	31,173.85
Washington	9,354	2,004	538	1,362,193.51	292,447.52	75,689.54	125,615.00	8,012.00	94,770.83	228,397.83
Wisconsin	1	1	....	40.00	40.00	....	9.00	4.00	....	13.00
Wyoming	3,123	332	125	459,556.42	50,383.08	15,288.29	41,904.00	1,328.00	19,135.91	62,367.91
Total	290,278	65,268	7,105	43,606,344.97	9,855,504.45	1,010,305.09	3,975,261.07	261,093.88	1,274,671.85	5,511,020.80

Coal-land entries from the passage of the act of March 3, 1873, to June 30, 1910.

State or Territory.	Entries.	Acres.	Amount.	State or Territory.	Entries.	Acres.	Amount.
Alabama	2	239.40	$2,394.00	New Mexico	191	22,429.22	$348,697.40
Alaska	141	24,460.48	244,605.16	North Dakota	126	7,576.99	116,295.20
Arizona	24	3,828.39	46,283.90	Oregon	51	8,203.33	87,740.30
California	37	5,227.96	78,460.30	South Dakota	26	1,753.74	19,537.40
Colorado	1,011	153,174.46	2,103,800.25	Utah	379	54,271.35	1,143,400.75
Colorado[a]	433	56,786.77	840,838.90	Washington	359	56,283.58	879,927.40
Dakota[b]	8	583.57	5,835.70	Wyoming	666	97,761.81	1,627,866.75
Idaho	4	520.00	5,200.00				
Montana	344	50,503.87	889,434.70	Total	3,806	544,244.92	8,448,318.11
Nevada	4	640.00	8,000.00				

[a] Within the Ute Indian Reservation. [b] Territory.

Land concessions, by acts of Congress, to States and corporations for railroad and military wagon-road purposes from the year 1850 to June 30, 1910.

STATE GRANTS.

	Acres.
Illinois:	
Illinois Central	2,595,133.00
Mississippi:	
Mobile and Ohio River	[a] 737,130.29
Vicksburg and Meridian	199,101.51
Gulf and Ship Island	139,113.22
	1,075,345.02
Alabama:	
Mobile and Ohio River	[a] 419,528.44
Alabama and Florida	399,022.84
Selma, Rome and Dalton	458,555.82
Coosa and Tennessee	67,784.96
Mobile and Girard	[b] 302,181.16
Alabama and Chattanooga	653,888.76
South and North Alabama	445,438.43
	2,746,400.41
Florida:	
Florida Central and Peninsular	721,693.71
Florida and Alabama	166,691.08
Pensacola and Georgia	1,279,236.70
Florida, Atlantic and Gulf Central	29,384.18
	2,197,005.67
Louisiana:	
Vicksburg, Shreveport and Pacific	463,746.78
New Orleans, Opelousas and Great Western	(c)
	463,746.78
Arkansas:	
St. Louis, Iron Mountain and Southern	1,325,275.46
Little Rock and Fort Smith	1,052,082.51
Memphis and Little Rock	184,657.33
	2,562,015.30

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[a] In the adjustment of this grant the road was treated as an entirety and without reference to the state line; hence Alabama has had approved to her more and Mississippi less than they would appear to be entitled to in proportion to the length of the road in the respective States.

[b] This grant was adjusted April 24, 1893, and 302,181.16 acres were allotted to the company. The balance of the previously certified lands were ordered restored to entry under the forfeiture act of September 29, 1890.

[c] Certified lands, footing 719,189.79 acres, were reconveyed to the United States by the governor of Louisiana February 24, 1888, the grant having been forfeited by act of July 14, 1870 (16 Stat., 277).

	Acres.
Missouri:	
Southwest branch of the Pacific road	1,161,284.51
Hannibal and St. Joseph	611,323.35
St. Louis, Iron Mountain and Southern	65,120.31
	1,837,728.17
Iowa:	
Burlington and Missouri River	389,990.11
Chicago, Rock Island and Pacific	[a] 483,214.36 161,532.81
Cedar Rapids and Missouri River	[a] 922,813.67 244,022.96
Dubuque and Sioux City	[a] 556,406.74
Iowa Falls and Sioux City	683,057.34
Des Moines Valley	840,091.36
Chicago, Milwaukee and St. Paul	326,216.10
McGregor and Missouri River	
Sioux City and St. Paul	322,412.81
	4,929,758.26
Michigan:	
Port Huron and Lake Michigan	37,467.44
Jackson, Lansing and Saginaw	743,787.58
Grand Rapids and Indiana	852,521.10
Flint and Pere Marquette	512,877.03
Marquette, Houghton and Ontonagon	[b] 305,929.59
Ontonagon and Brule River	34,227.08
Bay de Noquet and Marquette	128,301.05
Chicago and Northwestern	518,065.36
	3,133,176.23
Wisconsin:	
Chicago, St. Paul, Minneaplois and Omaha (formerly West Wisconsin)	813,706.71
Wisconsin Railroad Farm Mortgage Land Co	163,159.65
Chicago, St. Paul, Minneapolis and Omaha (formerly St. Croix and Lake Superior)	816,487.76
Branch to Bayfield	471,721.14
Chicago and Northwestern	546,446.20
Wisconsin Central	838,227.69
	3,649,749.15
Minnesota:	
St. Paul, Minneapolis and Manitoba (formerly first division, St. Paul and Pacific)	[c] 3,256,477.73
Western Railroad (succeeded by St. Paul and Northern Pacific)	
St. Paul, Minneapolis and Manitoba (formerly St. Vincent extension of the St. Paul and Pacific)	
Minnesota Central	179,734.29
Winona and St. Peter	1,680,974.92
St. Paul and Sioux City	1,126,578.55
St. Paul and Duluth	860,973.62
Southern Minnesota, from a point on the Mississippi River to Houston	546,745.44
Southern Minnesota extension (now Chicago, Milwaukee and St. Paul)	
Hastings and Dakota	377,776.15
	8,028,999.95

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[a] Includes 35,685.49 acres of the Chicago, Rock Island and Pacific Railroad, 109,756.85 acres of the Cedar Rapids and Missouri River Railroad, and 77,535.22 acres of the Dubuque and Sioux City Railroad, situated in the old Des Moines River grant of August 8, 1846, which should be deducted from the foregoing amount. (Wolcott *v.* Des Moines Co., 5 Wall., 631.)

[b] Excess of 131,481.71 acres originally certified under this grant reconveyed by State or entered under act March 3, 1887, by Michigan Land and Iron Company (Limited), grant having been forfeited in part by act March 2, 1889 (25 Stat., 1008).

[c] Declared to be one grant. See 32 L. D., 21.

	Acres.
Minnesota, North Dakota, Montana, Washington:	
St. Paul, Minneapolis and Manitoba, now Great Northern (main and branch), a special act (Aug. 5, 1892, 27 Stat. L., 390) to provide for indemnity for lands relinquished by the company	([a])
Kansas:	
Leavenworth, Lawrence, and Galveston	[b] 249,446.13
Missouri, Kansas and Texas	[c] 976,593.22
Atchison, Topeka and Santa Fe	2,944,788.14
St. Joseph and Denver City	462,933.24
	4,633,760.73
Grand total of state grants	37,853,079.40

CORPORATION GRANTS.

Union Pacific	11,930,685.95
Central Pacific	5,751,706.89
Central Pacific (successor by consolidation with Western Pacific)	458,147.97
Central Branch Union Pacific	223,080.50
Union Pacific (Kansas division)	6,175,660.63
Union Pacific (successor to the Denver Pacific Railway Company)	807,564.76
Burlington and Missouri River in Nebraska	2,374,090.77
Sioux City and Pacific (now Missouri Valley Land Company)	42,610.95
Northern Pacific	32,664,651.37
Oregon branch of the Central Pacific (California and Oregon)	3,154,913.49
Oregon and California	2,765,677.10
Atlantic and Pacific (now Santa Fe Pacific)	4,238,711.23
Southern Pacific (main line)	3,478,136.44
Southern Pacific (branch line)	1,315,707.13
Oregon Central	128,618.13
New Orleans Pacific	1,001,017.33
Grand total to corporations	76,486,980.64

WAGON ROADS.

From Lake Erie to Connecticut Western Reserve	80,773.54
From Lake Michigan to Ohio River	170,580.24
From Fort Wilkins, Copper Harbor, Mich., to Green Bay, Wis	302,930.96
From Fort Wilkins, Copper Harbor, to Wisconsin state line	221,013.35
Oregon Central Military Company (now California and Oregon Land Company)	605,860.62
Corvallis and Yaquina Bay	81,895.25
Willamette Valley and Cascade Mountain	861,511.86
Dalles military road	556,827.04
Coos Bay military road	105,240.11
Grand total	2,986,632.97

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[a] See Minnesota for original grants.

[b] Includes 186,936.72 acres of the "Osage ceded reservation," which are to be deducted from the above amount under the decision of the Supreme Court in the case of the Leavenworth, Lawrence and Galveston Railroad *v.* The United States (92 U. S., 733).

[c] Includes 270,970.78 acres in the "Osage ceded reservation," which are to be deducted under the decision cited in note *d*.

State desert-land segregations, act of August 18, 1894, and amendatory acts, commonly known as the Carey Act, to June 30, 1909.

State.	Applied for.	Segregated.	Rejected or relinquished.	Patented.	Reconveyed.	Time to reclaim extended.
	Acres.	*Acres.*	*Acres.*	*Acres.*	*Acres.*	*Acres.*
Colorado	728,881.29	90,964.23	8,106.70	....	....	....
Idaho	2,842,811.88	1,298,895.58	323,068.25	157,034.90	....	....
Montana	524,440.92	172,249.01	26,200.40	18,296.91	....	52,480.92
Nevada	121,083.88	10,246.02	22,625.56	....	....	....
New Mexico	20,164.68	....	....	....	....	....
Oregon	568,726.95	295,350.65	140,492.08	50,303.13	....	....
Utah	410,245.76	126,185.61	237,020.83	....	....	....
Wyoming	1,371,153.56	965,094.73	197,758.60	92,229.33	1,032.90	17,397.53
Total	6,587,508.92	2,958,985.83	955,272.42	317,864.27	1,032.90	69,878.45

RECAPITULATION.

	Acres.		Acres.
Applied for	6,587,508.92	Segregated	2,958,985.53
		Relinquished or rejected	955,272.42
		Acted on	2,673,250.97
	6,587,508.92		6,587,508.92

Of the foregoing applied for, segregated, rejected, and acted on, the following is under the act of March 15, 1910 (Public 87): Acres applied for, 690,659.92; segregated or withdrawn, 94,466.14; rejected, 7,005.28; acted on, 589,188.50.

Public and Indian lands entered each year ended June 30, from 1904 to 1910, inclusive.

State or Territory.	1904.	1905.	1906.	1907.	1908.	1909.	1910.
	Acres.	*Acres.*	*Acres.*	*Acres.*	*Acres.*	*Acres.*	*Acres.*
Alabama	95,338.63	97,561.08	102,621.51	92,530.30	81,228.56	50,930.86	47,353.42
Alaska	1,770.65	2,973.11	4,925.86	7,132.16	3,834.80	10,772.33	17,508.03
Arizona	234,085.06	151,340.84	107,054.87	86,121.64	198,509.64	468,160.64	541,793.23
Arkansas	516,964.53	416,583.11	441,530.07	496,015.40	333,676.41	171,316.50	137,637.76
California	986,253.31	1,032,758.32	809,811.28	579,294.93	766,932.98	1,290,579.46	1,214,348.36
Colorado	1,079,617.79	621,100.25	1,597,010.38	2,483,666.69	2,127,661.99	1,983,078.58	3,994,757.50
Florida	286,095.63	326,579.30	166,053.73	109,663.03	83,072.78	125,744.65	121,837.68
Idaho	855,754.73	609,568.10	734,763.70	1,162,745.25	1,087,402.94	1,383,443.88	1,768,010.34
Illinois	4.90	40.00	40.00	296.30	40.00	....	....
Indiana	....	9.30	....	129.70	10.08	40.00	....
Iowa	952.39	1,010.84	957.93	195.65	1,433.69	564.04	160.02
Kansas	268,627.46	273,100.34	669,438.67	611,726.97	332,931.81	166,375.14	157,311.36
Louisiana	95,324.72	269,200.68	80,086.61	89,608.79	59,450.26	39,428.40	22,344.86
Michigan	47,580.07	41,519.50	38,669.10	42,828.40	46,147.59	33,813.58	19,612.94
Minnesota	1,098,763.74	835,314.29	397,567.07	324,418.22	429,351.12	385,816.56	295,177.03
Mississippi	82,201.70	77,034.04	75,856.78	55,645.26	35,545.37	35,908.88	29,339.15
Missouri	117,304.56	104,096.72	101,426.89	154,871.72	129,157.20	53,560.91	52,509.66
Montana	1,052,994.63	1,086,290.05	1,782,279.90	1,218,780.97	1,494,052.02	2,460,905.55	6,616,734.69
Nebraska	1,318,931.13	4,792,351.65	1,736,964.79	1,785,762.47	1,781,823.80	1,979,872.10	1,638,485.72
Nevada	216,468.66	88,563.48	278,904.38	47,254.63	60,131.50	78,190.07	261,125.24
New Jersey	....	....	90.03	....	....	....	....
New Mexico	601,360.93	603,264.07	1,235,059.38	2,758,006.91	2,850,337.11	2,542,799.18	1,924,145.46
North Dakota	1,798,551.95	1,679,722.76	3,325,828.23	2,256,423.56	1,383,957.19	877,649.71	807,512.18
Oklahoma	1,394,227.56	770,225.35	1,426,306.46	2,007,753.84	514,159.58	297,572.30	193,692.95
Oregon	1,172,415.14	769,480.58	617,293.21	951,481.34	1,021,001.29	1,091,530.56	1,050,723.53
South Dakota	823,240.29	1,028,149.12	1,707,684.39	1,502,411.24	2,086,171.82	2,219,560.32	2,946,827.85
Utah	133,503.01	185,517.13	413,030.21	334,827.36	469,311.88	619,802.07	577,459.86
Washington	961,822.89	773,541.23	989,907.66	911,327.34	825,813.57	608,546.35	560,789.20
Wisconsin	89,949.98	72,012.71	55,592.44	28,966.92	57,595.61	19,061.18	17,007.33
Wyoming	402,192.24	347,714.32	534,431.94	897,679.59	829,614.19	897,479.96	1,377,063.74
Total	16,332,297.68	17,056,622.27	19,431,187.47	20,997,566.58	19,090,356.78	19,892,503.76	26,391,269.09

Unappropriated lands on June 30, 1910.

[A circular showing areas unappropriated, by counties, is distributed on request.]

State or Territory.	Area unappropriated and unreserved.		
	Surveyed.	Unsurveyed.	Total.
	Acres.	*Acres.*	*Acres.*
Alabama	108,210	....	108,210
Alaska	....	368,014,735	368,014,735
Arizona	12,361,814	29,129,555	41,491,369
Arkansas	512,705	....	512,705
California	18,803,012	6,061,872	24,864,884
Colorado	19,432,009	2,294,183	21,726,192
Florida	391,361	61,648	453,009
Idaho	7,237,279	17,506,525	24,743,804
Kansas	137,180	....	137,180
Louisiana	88,911	....	88,911
Michigan	107,890	....	107,890
Minnesota	1,516,302	47,000	1,563,302
Mississippi	47,058	....	47,058
Missouri	2,510	....	2,510
Montana	17,266,811	18,749,132	36,015,943
Nebraska	1,879,486	....	1,879,486
Nevada	29,790,500	26,684,188	56,474,688
New Mexico	23,576,992	12,877,700	36,454,692
North Dakota	1,410,225	....	1,410,225
Oklahoma	5,007	....	5,007
Oregon	13,463,734	4,116,839	17,580,573
South Dakota	4,375,864	186,940	4,562,804
Utah	11,766,486	24,189,068	35,955,554
Washington	1,258,587	1,937,472	3,196,059
Wisconsin	14,460	....	14,460
Wyoming	31,914,779	2,660,380	34,575,159
Grand total	197,469,172	514,517,237	711,986,409

Public lands surveyed and remaining unsurveyed.

State or Territory.	Land area.	Surveyed to June 30, 1910.	Unsurveyed.	State or Territory.	Land area.	Surveyed to June 30, 1910.	Unsurveyed.
	Acres.	*Acres.*	*Acres.*		*Acres.*	*Acres.*	*Acres.*
Alabama	32,818,560	32,818,560	....	Montana	93,296,640	55,597,827	37,698,813
Alaska	378,165,760	15,265	378,150,495	Nebraska	49,157,120	49,157,120	....
Arizona	72,857,600	21,131,584	51,726,016	Nevada	70,285,440	39,594,944	30,690,496
Arkansas	33,616,000	33,616,000	....	New Mexico	78,401,920	53,486,719	24,915,201
California	99,898,880	78,295,333	21,603,547				
Colorado	66,341,120	62,784,176	3,556,944	North Dakota	44,917,120	42,553,931	2,363,189
Florida	35,111,040	30,912,571	4,198,469	Ohio	26,073,600	26,073,600	....
Illinois	35,841,280	35,841,280	....	Oregon	61,188,480	49,052,281	12,136,199
Indiana	22,966,400	22,966,400	....	Oklahoma	44,424,960	44,424,960	....
Iowa	35,575,040	35,575,040	....				
Idaho	53,618,560	26,195,876	27,422,684	South Dakota	49,195,520	49,109,626	85,894
Kansas	52,335,360	52,335,360	....	Utah	52,597,760	25,900,630	26,697,130
Louisiana	29,061,760	27,176,996	1,884,764	Wisconsin	35,363,840	35,363,840	....
Michigan	36,787,200	36,787,200	....	Washington	42,775,040	32,022,203	10,752,837
Minnesota	51,749,120	49,457,190	2,291,930	Wyoming	62,460,160	56,829,418	5,630,742
Mississippi	29,671,680	29,671,680	....				
Missouri	43,985,280	43,985,280	....	Total	1,820,538,240	1,178,732,890	641,805,350

Estimated area of existing national forests June 30, 1910.

	Acres.		Acres.
Alaska	26,761,626	Nevada	5,109,415
Arizona	15,214,745	New Mexico	11,140,123
Arkansas	3,189,781	North Dakota	13,940
California	27,968,510	Oklahoma	60,800
Colorado	15,491,791	Oregon	15,920,822
Florida	674,891	Porto Rico	65,950
Idaho	19,963,171	South Dakota	1,294,440
Kansas	302,387	Utah	7,411,157
Michigan	163,373	Washington	12,007,340
Minnesota	1,204,486	Wyoming	8,941,681
Montana	19,474,696		
Nebraska	556,072	Total area	192,931,197

	Acres.
Area embraced in additions to national forests during year	382,698
Area embraced in eliminations from national forests during year	1,956,826
Area embraced in temporary withdrawals June 30, 1910	6,472,206
Area embraced in existing national forests June 30, 1909	194,505,325
Area embraced in existing national forests June 30, 1910	192,931,197

National monuments.

State and name.	Date created.	Area.	State and name.	Date created.	Area.
Alaska:		*Acres.*	New Mexico:		*Acres.*
Sitka	Mar. 23, 1910	57.00	Chaco Canyon	Mar. 11, 1907	20,629.40
Arizona:			El Morro	Dec. 8, 1906	160.00
Grand Canyon [a]	Jan. 11, 1908	806,400.00			
Montezuma Castle	Dec. 8, 1906	160.00	Gila Cliff Dwellings [a]	Nov. 16, 1907	160.00
Navajo	Mar. 20, 1909	[b] 600.00	Gran Quivira	Nov. 1, 1909	160.00
Petrified Forest	Dec. 8, 1906	60,776.02	Oregon:		
Tonto [a]	Dec. 19, 1907	640.00	Oregon Caves [a]	July 12, 1909	[c] 480.00
Tumacacori	Sept. 15, 1908	10.00	South Dakota:		
California:			Jewel Cave [a]	Feb. 7, 1908	1,280.00
Cinder Cone [a]	May 6, 1907	5,120.00	Utah:		
Lassen Peak [a]	do	1,280.00	Mukuntuweap	July 31, 1909	15,840.00
Muir Woods	Jan. 9, 1908	295.00	Natural Bridges	Sept. 25, 1909	2,740.00
Pinnacles [a]	Jan. 16, 1908	2,060.00	Rainbow Bridge	May 30, 1910	160.00
Colorado:			Washington:		
Wheeler [a]	Dec. 7, 1908	300.00	Mount Olympus [a]	Mar. 2, 1909	608,640.00
Montana:			Wyoming:		
			Devils Tower	Sept. 24, 1906	1,152.91
Lewis and Clark Cavern	May 11, 1908	160.00	Shoshone Cavern	Sept. 21, 1909	210.00
			Total		1,529,490.33

[a] Under jurisdiction of Department of Agriculture.
[b] Based on 15 known ruins; within Indian reservation.
[c] Estimated area.

Aggregate cash receipts from the disposal of public and Indian lands from May 20, 1785, to June 30, 1909.

Fiscal year.	Cash sales.	Amount of fees and commissions.	Total receipts from disposal of public lands.	Receipts from sales of Indian lands.	Miscellaneous receipts.	Aggregate receipts from all sources.
May 20, 1785, to June 30, 1880						$208,059,657.14
1881	$3,534,550.98	$860,833.65	$4,395,384.63	$1,006,691.63	$6,727.90	5,408,804.16
1882	6,628,775.92	1,124,531.15	7,753,307.07	634,617.22	6,591.75	8,394,516.04
1883	9,657,032.28	1,423,329.10	11,080,361.38	625,404.27	8,118.05	11,713,883.70
1884	10,304,582.49	1,536,410.58	11,840,993.07	938,137.26	10,274.76	12,789,405.09
1885	6,223,926.74	1,462,188.06	7,686,114.80	933,483.52	8,821.86	8,628,420.18
1886	5,757,891.06	1,654,876.25	7,412,767.31	1,607,729.63	10,587.40	9,031,084.34
1887	9,246,321.33	1,537,600.39	10,783,921.72	1,484,302.30	20,784.85	12,289,008.87
1888	11,203,071.95	1,498,000.05	12,701,072.00	821,113.77	24,951.65	13,547,137.42
1889	8,018,254.50	1,251,971.23	9,270,225.73	389,524.72	26,150.89	9,685,901.34
1890	6,349,174.24	1,121,696.07	7,470,870.31	293,062.30	16,585.00	7,780,517.61
1891	4,160,099.07	944,938.65	5,105,037.72	318,333.42	5,849.00	5,429,220.14
1892	3,322,865.01	1,064,805.26	4,387,670.27	456,681.84	15,757.58	4,860,109.69
1893	3,193,280.64	998,184.65	4,191,465.29	284,752.65	3,516.20	4,479,734.14
1894	1,653,080.71	1,021,205.08	2,674,285.79	91,981.03	1,557.50	2,767,824.32
1895	1,116,090.07	750,710.59	1,866,800.66	149,879.48	16,773.89	2,033,454.03
1896	1,053,905.59	793,557.82	1,847,463.41	214,700.42	44,197.84	2,106,361.67
1897	917,911.19	678,469.55	1,596,380.74	438,716.31	52,834.23	2,087,931.28
1898	1,291,076.10	853,265.50	2,144,341.60	100,317.49	33,336.09	2,277,995.18
1899	1,703,988.32	890,702.17	2,594,690.49	442,913.73	32,533.12	3,070,137.34
1900	2,899,731.83	1,157,081.03	4,056,812.86	239,769.39	83,175.85	4,379,758.10
1901	2,966,542.86	1,340,894.29	4,307,437.15	585,661.27	79,062.37	4,972,160.79
1902	4,139,268.47	1,740,820.18	5,880,088.65	288,666.68	93,171.85	6,261,927.18
1903	8,960,471.18	1,597,147.48	10,557,618.66	308,939.14	158,185.85	11,024,743.65
1904	7,445,902.84	1,349,990.89	8,795,893.73	333,757.62	153,690.63	9,283,341.98
1905	4,849,766.06	1,286,621.93	6,136,387.88	791,807.67	89,615.72	7,017,811.38
1906	4,885,988.82	1,642,488.56	6,528,477.38	967,532.50	89,514.02	7,585,523.90
1907	7,728,114.30	1,819,159.21	9,547,273.51	1,892,805.70	113,098.79	11,553,178.00
1908	9,760,570.19	1,731,883.57	11,492,453.76	997,972.52	225,283.18	12,715,709.46
1909	7,698,337.03	1,536,890.67	9,235,227.70	2,334,885.47	330,136.61	12,216,415.39
1910	6,342,744.75	2,028,892.35	8,371,637.10	2,037,551.68	1,054,735.28	11,463,924.06
Total						434,915,597.57

Amounts accrued and paid to States for educational purposes on account of grants of 2, 3, and 5 per cent of net proceeds of sales of public lands.

State.	Total to June 30, 1908.	Fiscal year 1909.	Aggregate to June 30, 1909, inclusive.
Alabama	$1,074,737.70	$917.15	$1,075,654.85
Arkansas	313,982.00	3,374.12	317,356.12
California	1,015,141.51	17,754.34	1,032,895.85
Colorado	390,019.10	18,590.81	408,609.91
Florida	128,667.23	1,473.77	130,141.00
Idaho	195,731.13	10,992.62	206,723.75
Illinois	1,187,908.89		1,187,908.89
Indiana	1,040,255.26		1,040,255.26
Iowa	633,638.10		633,638.10
Kansas	1,104,863.19	7,382.69	1,112,245.88
Louisiana	465,790.58	1,462.48	467,253.06
Michigan	584,740.71	1,445.48	586,186.19
Minnesota	557,621.17	16,460.12	574,081.29
Mississippi	1,069,843.91		1,069,843.91
Missouri	1,055,711.51	1,455.43	1,057,166.94
Montana	275,580.79	25,071.09	300,651.88
Nebraska	535,613.19	4,763.76	540,376.95
Nevada	19,856.39	3,467.88	23,324.27
New Mexico	46,550.17	25,526.06	72,076.23
North Dakota	378,738.52	55,167.40	433,905.92
Ohio	999,353.01		999,353.01
Oklahoma	14,629.49	24,014.14	38,643.63
Oregon	634,225.29	41,144.76	675,370.05
South Dakota	137,871.02	40,567.34	178,438.36
Utah	43,558.15	10,728.35	54,286.50
Washington	348,397.34	19,303.20	367,700.54
Wisconsin	585,690.94	355.14	586,046.08
Wyoming	141,667.54	18,517.52	160,185.06
Total	14,980,383.83	349,936.15	15,330,319.98

Amounts covered into the Treasury to the credit of the reclamation fund from the sales of public lands and fees and commissions in the several States and Territories under the act of June 17, 1902 (32 Stat. L., 388).

State or Territory.	Fiscal years—		Total for nine years ending June 30, 1909.
	1901 to 1908.	1909.	
Arizona	$435,925.98	$102,665.87	$538,591.85
California	3,453,779.14	384,708.46	3,838,487.60
Colorado	3,819,115.13	590,991.92	4,410,107.05
Idaho	3,493,432.49	296,128.62	3,789,561.11
Kansas	452,487.05	163,229.46	615,716.51
Montana	3,969,505.24	645,449.02	4,614,954.26
Nebraska	929,351.25	143,672.32	1,073,023.57
Nevada	203,374.29	72,783.35	276,157.64
New Mexico	1,649,114.36	680,194.17	2,329,308.53
North Dakota	8,383,144.59	1,197,775.96	9,580,920.55
Oklahoma	4,752,396.27	513,927.16	5,266,323.43
Oregon	8,174,692.33	888,043.33	9,062,735.66
South Dakota	2,565,056.66	980,705.61	3,545,762.27
Utah	769,768.62	229,048.92	998,817.54
Washington	5,081,284.27	446,800.27	5,528,084.54
Wyoming	2,441,024.51	419,342.37	2,860,366.88
Total	50,573,452.18	7,755,466.81	58,328,918.99

Amount of collections from reclamation water-right charges, etc., during the fiscal years ended June 30, 1908, 1909, and 1910.

[No water-right charges collected prior to July 1, 1907.]

State and land office.	1908.	1909	1910.
California:			
Los Angeles			$42,269.51
Idaho:			
Hailey	$5,706.18	$7,703.66	184,332.69
Montana:			
Billings	38,431.85	15,999.45	27,025.22
Glasgow			6,453.25
Great Falls	1,631.00	18,944.52	14,926.73
Miles City		199.50	8,625.00
Nebraska:			
Alliance		4,767.47	68,667.09
Nevada:			
Carson City	8,447.95	15,926.02	58,103.13
New Mexico:			
Roswell		7,626.75	72,483.60
North Dakota:			
Williston	423.00	555.50	4,397.47
Oregon:			
La Grande	350.00	6,114.60	61,011.44
Lakeview		7,150.48	66,112.00
South Dakota:			
Bellefourche			39,880.62
Rapid City		6,969.26	60.00
Washington:			
North Yakima		11,316.82	50,457.47
Waterville		3,375.20	22,475.50
Wyoming:			
Cheyenne		14.00	3,839.80
Lander	8,412.53	52,827.70	39,465.83
Total	63,402.51	159,490.93	770,586.35
Total to June 30, 1910			993,479.79

Entries examined in General Land Office during fiscal year ended June 30, 1910.

Kind of entry.	Pending June 30, 1909.	Received.	Total.	Approved.	Canceled.	Otherwise disposed of.	Total.	Pending June 30, 1910.
Homesteads:								
Original	305,923	98,598	404,521	....	13,110	47,201	60,311	344,210
Final	10,632	26,279	36,911	26,222	57	438	26,717	10,194
Commuted	8,055	21,059	29,114	20,979	80	189	21,248	7,866
Soldiers' additional	1,365	692	2,057	439	176	38	653	1,404
Timber and stone	1,035	2,896	3,931	2,880	16	78	2,974	957
Desert land:								
Original	25,392	17,662	43,054	....	4,797	3,179	7,976	35,078
Final	1,612	3,168	4,780	966	20	....	986	3,794
Yearly proofs examined	....	....	....	....	....	....	5,948	....
Assignments examined	....	....	....	....	....	....	406	....
Mineral, final	997	1,391	2,388	1,079	62	....	1,141	1,247
Coal, final	459	132	591	184	3	....	187	404
Timber culture:								
Original	77	1	78	....	12	4	16	62
Final	246	4	250	72	18	....	90	160
Preemption, final	281	2	283	13	4	12	29	254
Indian allotments	292	10,087	10,379	8,585	....	....	8,585	1,794
Indian homesteads	....	15	15	15	....	....	15	....
Town sites	....	....	....	....	....	....	....	....
Town lots	....	....	....	....	....	....	....	....
Public sales (isolated tracts)	1,519	2,393	3,912	2,392	1	20	2,413	1,499
Lieu selections (act June 4, 1897)	1,549	185	1,734	518	40	26	584	1,150
Military bounty land warrants	1,065	57	1,122	81	36	49	166	956
Miscellaneous entries	3,588	3,354	7,942	2,785	8	223	3,016	4,926

State and territorial grants, fiscal year ended June 30, 1910.

Kind.	Pending and received.			Disposed of.			Pending June 30, 1910.
	On hand July 1, 1909.	Since received.	Total.	Approved.	Canceled.	Total.	
	Acres.	*Acres.*	*Acres.*	*Acres.*	*Acres.*	*Acres.*	*Acres.*
School selections	1,020,338.09	1,382,402.36	2,402,740.45	634,206.27	60,502.81	694,709.08	1,708,031.37
University selections	33,101.43	3,264.62	36,366.05	7,299.00	524.04	7,823.04	28,543.01
Agricultural-college selections	28,949.61	11,948.65	40,898.26	24,838.17	....	24,838.17	16,060.09
Internal-improvement selections	320.07	134.81	454.88	....	254.81	254.81	200.07
Public buildings	11,771.86	....	11,771.86	2,224.72	39.37	2,264.09	9,507.77
Insane asylums	5,003.01	320.00	5,323.01	3,208.22	400.00	3,608.22	1,714.79
Educational, charitable, etc	17,828.25	1,598.23	19,426.48	....	....	....	19,426.48
Deaf and dumb asylums	4,752.28	....	4,752.28	1,120.00	705.96	1,825.96	2,926.32
Reform schools	1,858.44	....	1,858.44	550.81	....	550.81	1,307.63
School of mines	3,325.10	....	3,325.10	1,560.00	....	1,560.00	1,765.10
Normal schools	8,396.18	1,682.27	10,078.45	7,517.73	....	7,517.73	2,560.72
Scientific schools	1,000.00	....	1,000.00	800.00	200.00	1,000.00	....
Blind asylums	480.01	....	480.01	121.71	40.00	161.71	318.30
Reservoirs	13,857.88	....	13,857.88	4,419.86	9.47	4,429.33	9,428.55
Miners' hospitals	2,107.88	....	2,107.88	1,278.83	....	1,278.83	829.05
Forestry—Wisconsin	374.13	892.78	1,266.91	....	374.13	374.13	892.78
University preparatory school	2,868.80	1,052.40	3,921.20	2,828.80	....	2,828.80	1,092.40
Agricultural and mechanical college	5,129.75	2,909.31	8,039.06	4,169.49	960.28	5,129.77	2,909.29
Colored agricultural and normal university	200.00	....	200.00	160.00	....	160.00	40.00
Industrial school for girls	....	40.08	40.08	40.08	....	40.08	....
Military institute	....	80.80	80.80	80.80	....	80.80	....
Specific grant total	141,324.68	23,923.95	165,248.63	62,218.22	3,508.06	65,726.28	99,522.35
Grand total	1,161,662.77	1,406,326.31	2,567,989.08	696,424.49	64,010.87	760,435.36	1,807,558.72

State and territorial grants—Recapitulation.

State or Territory.	Indemnity school land.			Other grants.		
	Pending and selected.	Confirmed.	Canceled.	Pending and selected.	Confirmed.	Canceled.
	Acres.	*Acres.*	*Acres.*	*Acres.*	*Acres.*	*Acres.*
Alabama				40.08	40.08	
California	463,324.20	14,656.43	5,466.91	184.81		184.81
Colorado	56,072.36	22,670.32	2,394.32			
Florida	2,573.42	1,017.61	201.50			
Idaho	180,626.10		9,790.88	4,679.89	800.00	200.00
Kansas				7,681.04	7,541.92	
Louisiana	9,072.20	2,358.67	5,281.01			
Mississippi	320.74		160.18	320.65		
Montana	186,301.00	25,913.58	2,480.00	6,924.49	4,304.72	39.37
Nevada				320.07		120.00
New Mexico	589,310.77	189,906.61	280.00	1,082.05	161.73	
North Dakota	8,936.17	4,896.32	1,639.99	1,262.41	80.00	
Oklahoma	160.00			22,144.85	16,658.04	1,444.82
Oregon	92,829.42	32,691.64	2,579.82			
South Dakota	67,981.51	65,407.40	1,761.08			
Utah	576,911.48	223,604.73	11,956.40	87,692.83	30,567.21	1,155.43
Washington	59,877.40	3,564.31	12,520.43	2,357.87	2,064.52	
Wisconsin				1,266.91		374.13
Wyoming	158,443.68	47,518.65	3,990.29	29,340.68		40.00
Total	2,402,740.45	634,206.27	60,502.81	165,248.63	62,218.22	3,508.06

Swamp land grants.

[Land-in-place claims estimated.]

		Acres.
Pending and received:		
On hand July 1, 1909		636,561.84
Received		106,651.21
Total		743,213.05
Disposed of:		
Patented	72,493.93	
Rejected and canceled	11,400.00	
		83,893.93
Pending June 30, 1910		659,933.02

[Indemnity (cash and land).]

On hand July 1, 1909:	
Rejected and canceled	1,524,804.62
Pending June 30, 1910	11,040.00
	1,513,764.62

State desert-land segregations under section 4 of the act of August 18, 1894 (28 Stat., 372–422) and the acts amendatory thereof, commonly known as the Carey Act, during fiscal year ended June 30, 1910.

State.	Applied for.	Segregated.	Rejected or relinquished.	Patented.	Reconveyed.	Time to reclaim extended.
	Acres.	*Acres.*	*Acres.*	*Acres.*	*Acres.*	*Acres.*
Colorado	607,802.28	14,852.74	2,121.46			
Idaho	1,337,741.88	170,579.52	44,977.53			
Montana	170,997.91	70,133.56	23,407.87			2,280.00
Nevada	84,795.48	10,246.02	13,865.56			
New Mexico	20,164.68					
Oregon	132,884.22					
Utah	81,918.38	34,839.04	40.00			
Wyoming	329,641.64	35,114.87	42,280.80	20,199.19	1,032.90	
Total	2,765,946.47	335,765.75	126,693.22	20,199.19	1,032.90	2,280.00

RECAPITULATION.

	Acres.		Acres.
Applied for	2,765,946.47	Segregated	335,765.75
		Relinquished or rejected	126,693.22
		Acted on	2,313,487.50
	2,765,946.47		2,765,946.47

Lands certified or patented on account of railroad and wagon-road grants during the fiscal year ending June 30, 1910.

Railroad.	State.	Acres.
State grants:		
Chicago, Milwaukee and St. Paul	Minnesota	180.75
Corporations:		
Atlantic and Pacific (now Santa Fe Pacific)	Arizona	7,103.72
Central Pacific (successor to California and Oregon)	California	45.00
Central Pacific	do	80.00
Do	Nevada	12,813.75
Do	Utah	639.20
Northern Pacific	Idaho	6,099.03
Do	Minnesota	4,282.99
Do	Montana	264,457.49
Do	North Dakota	43,236.79
Do	Oregon	41,476.48
Do	Washington	22,177.52
Do	Wisconsin	404.17
Southern Pacific (branch line)	California	57,269.17
Union Pacific	Nebraska	119.82
Total of corporations		460,205.13
Wagon roads:		
California and Oregon Land Co. (successor to Oregon Central military road)	Oregon	23,669.01

RECAPITULATION.

	Acres.
State grants	180.75
Corporations	460,205.13
Wagon roads	23,669.01
Grand total	484,054.89
Received:	
Railroad selections	1,351,420.41
Wagon-road selections	6,634.68
Total	1,358,055.09

Alleged fraudulent entries acted on during year

Kind of entry.	Pending June 30, 1909.	Received.	Disposed of.				Pending June 30, 1910.	Hearings ordered by—	
			Approved.	Canceled.	Otherwise disposed of.	Total.		General Land Office.	Forest Service.
Homestead:									
Originals	11,572	10,237		3,992	3,165	7,157	14,652	4,882	248
Finals	411	3,083	2,132	104	419	2,655	839	162	13
Cash	1,152	1,614	1,900	74	505	2,479	287	192	5
Desert land:									
Originals	1,056	1,462		202	994	1,196	1,322	321	4
Finals	534	147		17	307	324	357	86	1
Timber culture:									
Originals	48	3		2	2	4	47	2	
Finals	118	10	10	19	90	119	9	5	
Timber and stone:									
Sworn statements	1,896	548		94	184	278	2,166	233	
Cash	1,121	409	842	34	310	1,186	344	123	2
Mineral:									
Applications	335	1,111		12	229	241	1,205	191	36
Finals	547	494		58	311	369	672	129	34
Selections:									
State	302	530		26	458	484	348	142	
Forest	114	399		4	188	192	321	360	
Indian allotments	43	2		1	11	12	39		1
Squatter claims	157	3		12	17	29	131		
Mineral locations	366	8		14	75	89	285	24	22
Total	19,772	20,060	4,884	4,665	7,265	16,814	23,018	6,852	366

Field reports on alleged fraudulent entries.

	Total received.	Within coal areas.	Within reclamation projects.	Within unreserved public domain.
Field:				
Forester—				
Adverse	307			
Favorable	603			
Agents—				
Adverse	7,814	285	192	7,337
Favorable	12,734	1,144	2,428	9,162
Coal-land cases	1,429			

Indictments, convictions, acquittals, and dismissals, fines imposed and paid, and prison sentences, June 30, 1909, to June 30, 1910.

Offense.	Indictments.	Convictions.	Prison sentences.	Fines imposed.	Fines paid.	Acquittals and dismissals.
Timber trespass	373	67	9	$6,125.00	$3,400.00	236
Conspiracy	69	41	6	60,750.00	54,400.00	75
Perjury	11	1	1	628.62	628.62	23
Unlawful inclosures	43	40	2	6,350.00	6,600.00	33
Subornation of perjury	4	1	1			
Embezzlement	3	3	3			
Impersonating government official	3	3	2		250.00	
Intimidating homesteaders	4	3				
Using mails to defraud	1					
Failure to obey subpoena	2	2			84.60	
Contempt		1	1			
Miscellaneous				3,753.35		62
Total	513	162	25	76,706.97	65,363.22	429

Number and kind of patents issued during fiscal year ended June 30, 1910.

Commuted homestead	22,926
Timber and stone	4,094
Public sale	3,233
Cash, miscellaneous	2,593
Desert land	1,016
Homestead	27,180
Military bounty land warrant	96
Forest lieu selection	484
Timber culture	90
Indian	8,750
Mineral	1,068
Coal	221
Private land claim	66
Small holding claim	62
Railroad	39
Swamp	18
Special act	115
Surveyor-general scrip	10
Sioux half-breed scrip	1
Choctaw scrip	1
Valentine scrip	8
State desert-land segregation	6
Cemetery site	5
Total	72,082
Cases approved and awaiting patent June 30, 1910	5,047
	77,129

Area, by classes, of lands patented during fiscal year ended June 30, 1910.

	Acres.
Commuted homestead	3,322,092.07
Timber and stone	496,723.993
Desert land	160,064.17
Public sale	276,549.16
Cash, miscellaneous	98,697.835
Town site	1,932.46
Town lot	617.563
Homestead	4,082,505.93
Forest lieu selection	67,418.91
Private land claim	405,435.514
Small holding claim	3,139.33
Timber culture	13,974.44
Military bounty land warrant	6,611.21
Indian trust	1,405,851.085
Railroad	458,481.25
Swamp	73,251.48
Mineral	51,732.856
Coal	24,228.28
Desert-land segregation	20,198.78
Surveyor-general scrip	639.88
Sioux half-breed	320.00
Valentine scrip	224.45
Choctaw scrip	160.55
Cemetery site	400.00
Special act—	
August 7, 1882	283.10
July 5, 1884	2,937.68
Special act—Continued.	
March 3, 1887	268.76
May 24, 1888	30.41
August 23, 1894	160.00
January 18, 1897	520.00
March 11, 1898	147.10
July 1, 1898	960.53
February 18, 1899	40.08
June 6, 1900	171.89
March 3, 1901	574.53
May 3, 1901	320.00
May 31, 1902	1,100.66
March 3, 1903	40.09
February 24, 1905	604.11
March 3, 1905	160.00
June 9, 1906	271.50
June 30, 1906	222.80
February 18, 1907	602.79
March 1, 1907	40.00
March 4, 1907	2,402.09
March 4, 1909	40.80
Total	10,983,150.116
Acreage of Indian fee patents not included in the above	166,618.628

Entries made and expenses incurred at district land offices during fiscal year ended June 30, 1910.

Location.	Number of applications, entries, etc.	Area entered (acres).	Receipts.			Expenses.		
			Fees and commissions.	Sales of land.	Total.	Salaries and commissions of registers and receivers.	Incidental expenses.	Total.
Alabama:								
Montgomery	1,148	47,141.36	$6,842.04	$17,213.41	$24,055.45	$4,288.84	$1,233.18	$5,522.02
Alaska:								
Fairbanks	12	....	....	2,316.30	2,316.30	....	....	....
Juneau	172	16,016.21	785.69	127,182.99	127,968.68	5,178.72	1,144.21	6,322.93
Nome	38	1,491.82	180.00	3,882.50	4,062.50	180.00	....	180.00
Arizona:								
Phoenix	2,966	541,793.23	26,918.14	144,215.02	171,133.16	6,000.00	5,552.50	11,552.50
Arkansas:								
Camden	830	25,867.34	5,177.25	16,113.73	21,290.98	4,531.12	2,134.16	6,665.28
Harrison	1,423	61,546.13	9,728.62	12,887.33	22,615.95	5,991.67	2,679.97	8,671.64
Little Rock	1,215	50,284.29	8,504.49	14,312.25	22,816.74	6,000.00	2,861.50	8,861.50
California:								
Eureka	284	17,229.21	2,499.75	19,209.00	21,708.75	3,088.94	535.48	3,624.42
Independence	336	135,406.64	2,822.84	24,256.78	27,079.62	3,782.92	306.25	4,089.17
Los Angeles	2,902	676,907.64	16,134.44	148,554.00	164,688.44	6,000.00	8,567.90	14,567.90
Oakland	807	74,112.08	9,335.99	34,935.63	44,271.62	5,891.67	3,521.00	9,412.67
Redding	353	48,662.42	4,420.45	27,090.15	31,510.60	5,201.78	1,607.04	6,808.82
Sacramento	596	39,808.44	6,131.09	27,107.14	33,238.23	6,000.00	2,514.95	8,514.95
Susanville	634	87,798.37	4,584.10	24,955.56	29,539.66	3,892.98	1,254.26	5,147.24
Visalia	797	111,087.20	8,077.94	43,290.76	51,368.70	6,000.00	1,297.48	7,297.48
Colorado:								
Del Norte	690	110,177.74	4,603.12	25,858.33	30,461.45	3,779.36	382.19	4,161.55
Denver	4,455	727,879.88	57,573.34	156,306.34	213,879.68	6,000.00	6,077.50	12,077.50
Durango	439	25,554.72	5,471.98	22,398.71	27,870.69	5,375.53	1,567.00	6,942.53
Glenwood Springs	888	266,661.51	15,398.81	23,175.43	38,574.24	6,000.00	2,627.16	8,627.16
Hugo	3,184	588,021.54	60,924.32	62,796.46	123,720.78	6,000.00	3,469.92	9,469.92
Lamar	2,794	598,963.93	43,191.98	53,582.72	96,774.70	6,000.00	2,189.50	8,189.50
Leadville	134	6,862.03	981.13	9,845.00	10,826.13	1,933.03	16.42	1,949.45
Montrose	385	27,580.24	7,301.87	9,556.55	16,858.42	6,000.00	4,055.00	10,055.00
Pueblo	2,534	395,015.97	27,527.77	71,335.30	98,863.07	6,000.00	4,128.19	10,128.19
Sterling	5,452	1,047,207.96	81,048.24	58,726.35	139,774.59	6,000.00	3,535.64	9,535.64
Florida:								
Gainesville	2,017	121,504.11	15,094.58	28,602.64	43,697.22	6,000.00	5,883.50	11,883.50

Entries made and expenses incurred at district land offices during fiscal year ended June 30, 1910—Continued.

Location.	Number of applications, entries, etc.	Area entered (acres).	Receipts.			Expenses.		
			Fees and commissions.	Sales of land.	Total.	Salaries and commissions of registers and receivers.	Incidental expenses.	Total.
Idaho:								
Blackfoot	2,621	613,824.48	$29,448.19	$65,451.42	$94,899.61	$6,000.00	$4,064.18	$10,064.18
Boise	2,905	412,692.21	21,514.97	79,661.45	101,176.42	6,000.00	3,631.04	9,631.04
Cœur d'Alene	900	61,818.27	19,568.27	60,890.36	80,458.63	6,000.00	3,968.11	9,968.11
Hailey	1,859	485,046.93	16,812.94	60,680.79	77,493.73	6,000.00	4,663.81	10,663.81
Lewiston	1,002	104,205.66	10,261.00	30,295.79	40,556.79	6,000.00	3,096.35	9,096.35
Iowa:								
Des Moines	4	....	263.13	415.00	678.13	612.25	2.34	614.59
Kansas:								
Dodge City	1,793	116,748.20	15,351.91	113,736.56	129,088.47	6,000.00	5,294.94	11,294.94
Topeka	588	36,883.41	5,793.85	19,076.53	24,870.38	4,840.00	59.95	4,899.95
Louisiana:								
Natchitoches	170	4,164.74	1,454.80	1,497.65	2,952.45	2,106.71	972.44	3,079.15
New Orleans	531	18,180.12	4,154.24	5,785.41	9,939.65	3,689.82	2,169.19	5,859.01
Michigan:								
Marquette	439	19,612.94	4,054.74	14,046.23	18,100.97	4,105.69	2,080.54	6,186.23
Minnesota:								
Cass Lake	556	20,666.66	10,083.41	25,844.84	35,928.25	6,000.00	4,070.74	10,070.74
Crookston	232	8,082.20	10,792.30	6,320.97	17,113.27	5,971.00	2,105.60	8,076.60
Duluth	2,134	90,851.36	16,071.19	140,312.69	156,383.88	6,000.00	4,039.96	10,039.96
Mississippi:								
Jackson	803	28,624.43	5,049.07	6,969.67	12,018.74	3,993.43	2,448.63	6,442.06
Missouri:								
Springfield	1,092	52,509.66	5,097.08	39,946.07	45,043.15	5,201.36	1,171.48	6,372.84
Montana:								
Billings	1,173	153,841.84	22,733.13	82,523.57	105,256.70	6,000.00	2,970.33	8,970.33
Bozeman	1,533	259,820.14	22,605.93	35,480.07	58,086.00	5,988.00	1,862.67	7,850.67
Glasgow	5,937	1,296,563.51	96,969.14	64,199.21	161,168.35	6,000.00	4,015.05	10,015.05
Great Falls	9,677	2,064,502.06	142,405.43	97,070.54	239,475.97	6,000.00	8,163.85	14,163.85
Helena	1,548	302,939.77	19,361.74	70,528.69	89,890.43	6,000.00	3,002.50	9,002.50
Kalispell	358	22,555.25	7,034.42	7,352.70	14,387.12	4,751.10	1,700.00	6,451.10
Lewistown	5,276	952,220.82	61,288.32	212,355.33	273,643.65	6,000.00	3,727.08	9,727.08
Miles City	4,388	1,426,452.33	88,500.76	102,015.16	190,515.92	6,000.00	4,458.91	10,458.91
Missoula	441	38,801.65	8,168.74	31,888.04	40,056.78	5,264.84	3,891.00	9,155.84

Nebraska:								
Alliance	2,122	616,284.13	23,445.62	41,125.96	64,571.58	6,000.00	5,046.00	11,046.00
Broken Bow	1,196	365,486.23	12,489.58	11,833.42	24,323.00	6,000.00	1,564.77	7,564.77
Lincoln	358	33,064.99	3,068.32	5,471.57	8,539.89	3,136.50	35.68	3,172.18
North Platte	973	197,863.54	11,512.62	9,263.64	20,776.26	6,000.00	1,720.32	7,720.32
O'Neill	858	108,928.81	7,745.38	10,332.18	18,077.56	6,000.00	1,339.86	7,339.86
Valentine	1,392	316,858.02	12,751.56	24,600.56	37,352.12	6,000.00	1,689.36	7,689.36
Nevada:								
Carson City	1,047	261,125.24	9,042.06	58,043.78	67,085.84	6,000.00	2,938.40	8,938.40
New Mexico:								
Clayton	3,111	572,135.78	43,742.66	50,900.77	94,643.43	6,000.00	5,179.86	11,179.86
Las Cruces	1,204	157,362.84	10,210.24	37,390.51	47,600.75	6,000.00	2,847.81	8,847.81
Roswell	4,284	608,096.67	47,074.32	180,968.91	228,043.23	6,000.00	7,556.33	13,556.33
Santa Fe	2,798	357,439.21	30,658.48	122,221.70	152,880.18	6,000.00	5,864.36	11,864.36
Tucumcari	2,144	229,110.96	23,948.58	111,368.47	135,317.05	6,000.00	5,295.71	11,295.71
North Dakota:								
Bismarck	3,513	170,258.54	30,519.97	239,808.61	270,328.58	6,000.00	5,073.92	11,073.92
Devils Lake	803	22,708.30	5,125.87	37,235.29	42,361.16	5,195.40	2,867.20	8,062.60
Dickinson	2,965	276,720.98	35,160.15	176,697.90	211,858.05	6,000.00	5,140.61	11,140.61
Fargo	635	24,263.34	5,290.40	41,742.76	47,033.16	5,549.47	970.44	6,519.91
Minot	1,659	52,809.30	8,589.90	117,402.38	125,992.28	6,000.00	5,259.46	11,259.46
Williston	3,548	257,624.82	27,859.65	224,054.69	251,914.34	6,000.00	5,367.65	11,367.65
Oklahoma:								
El Reno	230	5,952.47	1,755.13	10,290.14	12,045.27	2,308.14	1,757.70	4,065.84
Guthrie	876	29,111.78	5,690.12	19,623.21	25,313.33	4,751.08	4,851.93	9,603.01
Lawton	876	31,460.03	7,733.26	52,108.44	59,841.70	5,458.33	4,626.67	10,085.00
Woodward	4,070	126,313.19	25,057.78	158,718.66	183,776.44	6,000.00	6,136.99	12,136.99
Oregon:								
Burns	1,713	266,975.70	15,028.91	49,227.82	64,256.73	6,000.00	1,660.25	7,660.25
La Grande	1,578	187,016.20	15,475.11	61,750.22	77,225.33	6,000.00	4,000.91	10,000.91
Lakeview	1,195	207,238.07	14,957.66	32,719.71	47,677.37	6,000.00	1,499.16	7,499.16
Portland	804	55,600.36	9,369.11	43,530.78	52,899.89	5,817.73	2,454.72	8,272.45
Roseburg	1,144	85,244.21	12,929.86	49,861.85	62,791.71	5,999.94	4,531.05	10,530.99
The Dalles	2,118	231,757.00	20,477.37	67,090.29	87,567.66	6,000.00	3,461.29	9,461.29
South Dakota:								
Aberdeen	674	38,020.30	17,360.77	18,124.09	35,484.86	6,000.00	2,199.38	8,199.38
Bellefourche	4,019	538,152.61	45,517.75	40,377.79	85,895.54	6,000.00	5,295.71	11,295.71
Chamberlain	1,431	65,892.84	8,899.27	70,846.10	79,745.37	6,000.00	4,286.05	10,286.05
Gregory	261	4,937.45	36,557.12	3,138.18	39,695.30	6,000.00	4,925.61	10,925.61
Lemmon	8,470	877,218.02	87,441.60	295,518.13	382,959.73	6,000.00	7,503.34	13,503.34
Pierre	2,640	131,485.43	17,153.44	126,052.28	143,205.72	6,000.00	4,805.93	10,805.93
Rapid City	6,423	681,561.78	59,725.39	183,088.88	242,814.27	6,000.00	5,778.50	11,778.50
Utah:								
Salt Lake City	2,221	503,443.92	27,603.76	358,967.26	386,571.02	6,000.00	4,160.25	10,160.25
Vernal	146	35,436.71	6,249.58	1,682.58	7,932.16	4,731.24	1,731.55	6,462.79

Entries made and expenses incurred at district land offices during fiscal year ended June 30, 1910—Continued.

Location.	Number of applications, entries, etc.	Area entered (acres).	Receipts.			Expenses.		
			Fees and commissions.	Sales of land.	Total.	Salaries and commissions of registers and receivers.	Incidental expenses.	Total.
Washington:								
North Yakima	843	100,872.63	$8,466.78	$38,315.82	$46,782.60	$6,000.00	$3,116.50	$9,116.50
Olympia	104	14,829.65	1,286.45	1,177.30	2,463.75	1,959.99	557.34	2,517.33
Seattle	425	24,905.03	4,644.94	51,828.50	56,473.44	6,000.00	2,607.67	8,607.67
Spokane	1,200	83,386.13	16,009.99	60,039.00	76,048.99	6,000.00	4,492.33	10,492.33
Vancouver	761	37,591.22	8,063.06	27,777.34	35,840.40	6,000.00	2,832.31	8,832.31
Walla Walla	1,136	96,828.08	11,474.49	50,276.96	61,751.45	6,000.00	3,238.04	9,238.04
Waterville	2,115	178,380.33	20,788.47	63,831.54	84,620.01	6,000.00	3,609.62	9,609.62
Wisconsin:								
Wausau	652	16,967.33	4,559.74	7,222.21	11,781.95	4,369.04	1,475.74	5,844.78
Wyoming:								
Buffalo	774	70,336.29	5,586.00	73,373.00	78,959.00	5,440.52	2,653.00	8,093.52
Cheyenne	1,973	426,728.91	30,776.63	80,414.25	111,190.88	6,000.00	2,248.17	8,248.17
Douglas	1,327	234,202.63	13,975.41	50,593.98	64,569.39	6,000.00	1,451.59	7,451.59
Evanston	618	81,245.01	4,621.65	34,453.06	39,074.71	4,696.94	1,070.54	5,767.48
Lander	647	52,996.38	6,784.19	30,480.61	37,264.80	5,698.59	1,449.94	7,148.53
Sundance	2,513	489,201.95	32,537.53	45,730.55	78,268.08	6,000.00	1,622.88	7,622.88
Total	176,122	25,075,556.99	2,028,892.35	6,342,744.75	8,371,637.10	548,753.67	320,622.99	869,376.66

RECAPITULATION BY STATES.

Alabama	1,148	47,141.36	$6,842.04	$17,213.41	$24,055.45	$4,288.84	$1,233.18	$5,522.02
Alaska	222	17,508.03	965.69	133,381.79	134,347.48	5,358.72	1,144.21	6,502.93
Arizona	2,966	541,793.23	26,918.14	144,215.02	171,133.16	6,000.00	5,552.50	11,552.50
Arkansas	3,468	137,637.76	23,410.36	43,313.31	66,723.67	16,522.79	7,675.63	24,198.42
California	6,799	1,186,007.00	54,006.60	349,399.02	403,405.62	39,858.29	19,604.36	59,462.65
Colorado	20,955	3,793,925.52	304,022.56	493,581.19	797,603.75	53,087.92	28,048.52	81,136.44
Florida	2,017	121,504.11	15,094.58	28,602.64	43,697.22	6,000.00	5,883.50	11,883.50
Idaho	9,287	1,677,587.55	97,605.37	296,979.81	394,585.18	30,000.00	19,423.49	49,423.49
Iowa	4		263.13	415.00	678.13	612.25	2.34	614.59
Kansas	2,381	153,631.61	21,145.76	132,813.09	153,958.85	10,840.00	5,354.89	16,194.89
Louisiana	701	22,344.86	5,609.04	7,283.06	12,892.10	5,796.53	3,141.63	8,938.16
Michigan	439	19,612.94	4,054.74	14,046.23	18,100.97	4,105.69	2,080.54	6,186.23
Minnesota	2,922	119,600.22	36,946.90	172,478.50	209,425.40	17,971.00	10,216.30	28,187.30
Mississippi	803	28,624.43	5,049.07	6,969.67	12,018.74	3,993.43	2,448.63	6,442.06
Missouri	1,092	52,509.66	5,097.08	39,946.07	45,043.15	5,201.36	1,171.48	6,372.84
Montana	30,331	6,517,697.37	469,067.61	703,413.31	1,172,480.92	52,003.94	33,791.39	85,795.33
Nebraska	6,899	1,638,485.72	71,013.08	102,627.33	173,640.41	33,136.50	11,396.99	44,532.49
Nevada	1,047	261,125.24	9,042.06	58,043.78	67,085.84	6,000.00	2,938.40	8,938.40
New Mexico	13,541	1,924,145.46	155,634.28	502,850.36	658,484.64	30,000.00	26,744.07	56,744.07
North Dakota	13,123	804,385.28	112,545.94	836,941.63	949,487.57	34,744.87	24,679.28	59,424.15
Oklahoma	6,052	192,837.47	40,236.29	240,740.45	280,976.74	18,517.55	17,373.29	35,890.84
Oregon	8,552	1,033,831.54	88,238.02	304,180.67	392,418.69	35,817.67	17,607.38	53,425.05
South Dakota	23,918	2,337,268.43	272,655.34	737,145.45	1,009,800.79	42,000.00	34,794.52	76,794.52
Utah	2,367	538,880.63	33,853.34	360,649.84	394,503.18	10,731.24	5,891.80	16,623.04
Washington	6,584	535,798.07	70,734.18	293,246.46	363,980.64	37,959.99	20,453.81	58,413.80
Wisconsin	652	16,967.33	4,559.74	7,222.21	11,781.95	4,369.04	1,475.74	5,844.78
Wyoming	7,852	1,354,711.17	94,281.41	315,045.45	409,326.86	33,836.05	10,496.12	44,332.17
Total	176,122	25,075,556.99	2,028,892.35	6,342,744.75	8,371,687.10	548,753.67	320,622.99	869,376.66
Swamp lands patented		72,493.93						
Sales of Indian lands		1,243,218.17			2,037,551.68			
Depredations, government property, copies of records, reclamation water-right charges, etc.					1,054,735.28			
Total	176,122	26,391,269.09	2,028,892.35	6,342,744.75	11,463,924.06	548,753.67	320,622.99	869,376.66

Entries made and expenses incurred at district land offices during fiscal year ended June 30, 1910—Continued.

RECAPITULATION BY CLASSES OF ENTRIES.

State or Territory.	Sales of land—														
	At public auction.			Subject to preemption entry.			Timber and stone.			Mineral.			Coal.		
	Entries.	Acres.	Amount.	Entries.	Acres.	Amount.	Entries.	Acres.	Amount.	Entries.	Acres.	Amount.	Entries.	Acres.	Amount.
Alabama				2	80.20	$100.25	18	1,727.98	$4,860.08						
Alaska	6	521.21	$620.14							34	2,510.42	$8,607.50	59	12,175.86	$121,758.81
Arizona				14	1,280.94	1,783.04				116	10,774.55	46,482.50	19	3,028.39	30,283.90
Arkansas	18	735.16	1,093.23	17	1,008.08	1,263.11	23	2,444.95	8,231.00	4	428.71	1,072.50			
California	110	6,798.24	12,912.55	4	467.53	584.41	158	20,753.38	62,921.07	133	18,611.63	52,012.50	1	320.00	6,400.00
Colorado	81	11,085.22	15,226.17				61	6,734.82	25,262.36	243	7,251.09	32,317.50	8	1,209.96	15,799.20
Florida	6	351.28	568.85				31	3,532.75	11,964.01	5	560.20	1,410.00			
Idaho	69	4,000.82	8,856.74				92	11,745.00	59,993.87	90	6,275.15	24,739.50	2	240.00	2,400.00
Iowa															
Kansas	31	2,583.28	3,879.11	1	118.50	150.00									
Louisiana							5	238.94	1,262.50						
Michigan				3	160.00	160.00	38	3,425.23	10,436.69						
Minnesota	11	2,905.25	3,711.77				397	48,731.46	133,715.78						
Mississippi	2	240.01	499.99												
Missouri				384	31,411.31	39,919.77									
Montana	260	21,016.24	42,718.95				98	10,950.04	33,383.52	117	5,892.89	23,957.50	42	7,247.41	145,844.20
Nebraska	389	56,091.73	87,989.03												
Nevada										159	8,306.79	40,797.50			
New Mexico	14	1,290.02	1,643.05							39	1,876.09	9,365.00	3	679.29	13,585.80
North Dakota	765	46,109.18	188,028.99	3	200.00	250.00	5	510.70	1,666.75				17	918.03	10,320.20
Oklahoma	8	308.86	509.07												
Oregon	258	22,019.25	32,187.25				285	34,209.29	118,234.30	13	1,560.22	2,997.50			
South Dakota	480	30,344.65	131,108.15				19	2,040.00	6,513.38	12	537.99	2,715.00	17	1,040.00	12,800.00
Utah	1	40.00	50.00				4	280.08	790.26	104	8,235.33	34,147.50	49	6,503.52	307,087.00
Washington	142	10,530.95	18,684.35	1	1.20	3.00	150	17,137.71	63,166.76	18	1,566.76	5,600.71	7	1,581.10	31,622.00
Wisconsin	4	160.00	300.00				4	320.00	969.00						
Wyoming	361	34,836.37	49,951.00				65	6,207.13	18,499.92	27	3,161.72	9,016.76	24	3,381.70	74,424.30
Total	3,016	251,967.72	600,538.39	429	34,727.76	44,313.58	1,453	170,989.46	561,871.16	1,114	77,549.54	295,239.47	248	38,325.26	772,325.41

State or Territory.	Sales of abandoned military reservations.	Excess payments on homestead and other entries.			Desert-land entries.					
		Entries.	Acres.	Amount.	Entries.		Area.		Amount.	
					Original.	Final.	Original.	Final.	Original.	Final.
Alabama		75	141.60	$176.97						
Arizona		88	393.24	521.25	847	22	178,232.45	2,575.06	$44,378.61	$2,575.06
Arkansas		41	249.72	312.17						
California		212	920.70	1,365.04	2,179	414	474,494.16	60,378.23	118,683.03	60,404.62
Colorado		1,261	4,173.77	6,099.73	2,881	263	557,417.76	48,844.03	139,258.44	48,844.04
Florida	$449.99	250	316.21	395.85	1,868	218	318,961.74			
Idaho	5,907.92	285	1,182.65	1,504.58				31,315.52	79,651.54	31,317.08
Kansas		34	71.31	120.27						
Louisiana		34	89.51	112.14						
Michigan		6	20.08	25.10						
Minnesota		35	222.65	253.05						
Mississippi		24	69.55	87.03						
Missouri		4	21.84	26.30						
Montana	628.55	1,148	4,046.47	6,377.14	3,213	543	590,718.63	97,276.78	147,615.32	97,291.04
Nebraska	5,433.17	264	1,113.34	1,427.63						
Nevada		37	208.76	282.43	273	11	59,520.18	1,251.96	14,877.89	1,251.96
New Mexico	1,210.37	544	1,460.28	1,835.01	820	58	138,922.22	8,224.00	34,686.18	8,184.25
North Dakota		289	1,423.43	2,828.64	2	6	320.00	760.00	80.00	760.00
Oklahoma		31	79.61	99.36						
Oregon		304	1,446.75	1,777.28	755	108	133,288.62	15,718.72	33,065.34	15,678.42
South Dakota	487.98	802	3,563.30	4,397.59	728	61	106,567.58	9,540.68	25,907.64	9,540.75
Utah	125.88	106	220.34	376.31	325	31	49,533.53	4,535.11	12,383.41	4,425.11
Washington		165	670.12	1,128.07	741	15	119,315.74	1,154.07	29,655.66	1,154.07
Wisconsin		9	35.73	63.12						
Wyoming		338	2,111.76	1,762.86	988	296	172,437.42	42,672.36	42,978.44	42,665.30
Total	14,243.86	6,386	24,252.72	33,354.92	15,620	2,041	2,899,730.08	324,246.52	723,241.50	324,091.70

Entries made and expenses incurred at district land offices during fiscal year ended June 30, 1910—Continued.

RECAPITULATION BY CLASSES OF ENTRIES—Continued.

State or Territory.	Homestead entries.								
	Entries.			Area.			Amount.		
	Original.	Final.	Commuted.	Original.	Final.	Commuted.	Original.	Final.	Commuted.
Alabama	548	373	100	45,213.18	34,060.64	9,480.16	$4,764.02	$851.55	$11,833.05
Alaska	21	....	....	2,400.54	....	....	333.63	....	....
Arizona	1,435	155	98	213,891.40	21,207.20	14,163.71	21,608.27	838.79	17,704.66
Arkansas	1,488	1,574	221	132,860.86	181,405.14	24,979.88	13,525.54	4,548.32	31,141.30
California	2,144	600	168	278,700.59	86,969.09	23,796.03	31,620.27	3,777.32	33,715.80
Colorado	13,489	1,237	950	2,960,758.10	196,630.36	148,552.75	274,912.76	8,608.51	209,822.77
Florida	981	564	101	116,314.72	73,287.60	10,982.15	10,887.10	1,829.18	13,708.93
Idaho	4,338	1,583	434	565,579.91	145,089.44	61,256.24	59,600.59	6,489.70	81,113.16
Iowa	....	....	1	....	....	80.00	....	....	200.00
Kansas	1,020	663	615	150,769.83	102,286.62	93,642.31	14,502.06	3,347.66	128,663.71
Louisiana	307	279	57	22,105.92	23,017.18	4,180.52	2,597.52	706.74	5,858.27
Michigan	176	129	27	16,027.71	13,681.41	2,762.03	1,628.39	341.67	3,424.58
Minnesota	1,704	1,315	215	196,945.92	173,157.20	26,360.46	19,057.34	4,764.05	34,447.90
Mississippi	368	325	70	23,831.57	27,829.60	4,912.91	2,830.82	712.14	6,322.78
Missouri	280	423	....	21,025.97	39,880.59	....	2,285.16	1,076.73	....
Montana	21,982	1,012	810	4,732,806.60	154,415.05	123,301.15	424,340.64	7,410.85	195,396.01
Nebraska	3,653	2,508	51	1,569,173.87	955,111.13	5,624.48	50,080.12	10,496.43	7,792.58
Nevada	310	27	4	48,210.34	3,925.93	520.00	4,803.61	184.73	650.00
New Mexico	8,344	905	2,202	1,496,528.68	140,686.60	355,106.76	136,322.97	5,372.06	430,072.45
North Dakota	5,448	3,650	2,521	751,002.78	566,463.65	387,538.21	77,649.28	21,346.20	632,997.05
Oklahoma	1,496	3,101	1,392	187,930.35	464,731.67	192,752.68	17,379.40	11,614.24	240,133.02
Oregon	3,952	1,175	500	642,915.35	177,353.22	72,947.71	58,027.20	7,645.06	98,528.99
South Dakota	16,606	1,104	5,635	2,529,008.30	167,883.03	867,630.13	224,756.38	4,321.78	543,651.13
Utah	1,390	32	8	297,806.06	4,680.92	839.05	26,839.58	186.75	1,115.62
Washington	2,472	1,844	562	334,963.48	276,350.71	77,967.63	39,093.24	15,351.79	141,769.34
Wisconsin	211	354	53	14,914.55	37,821.26	3,552.05	1,912.45	1,531.95	5,890.09
Wyoming	4,435	480	297	977,429.04	76,032.70	46,194.08	81,179.06	3,084.81	74,337.87
Total	98,598	25,412	17,092	18,329,115.62	4,143,957.94	2,559,123.08	1,602,537.40	126,439.00	2,950,291.01

State.	Applications.				Mineral protests.		Filings.										Fees.		Coal-land applications.	
	For timber and stone lands.		Mineral.				Preemption.		Homestead.		Coal land.		Reservoir.		Town site.		Cancellation.	Received for reducing testimony to writing, etc.		
	No.	Fees.	No.	Fees.	No.	Fees.	No.	Fees.	No.	Fees.	No.	Fees.	No.	Fees.	No.	Fees.				
Alabama	39	$390.00																$836.47		
Alaska			32	$320	1	$10					37	$94.60						15.46	19	$190
Arizona			119	1,190	15	150			5	$15			5	$15	1	$3		1,406.08		
Arkansas	42	416.85	3	30					30	60								4,759.65		
California	292	2,920.06	155	1,550	18	180			26	78	5	15.00						8,584.04		
Colorado	121	1,210.00	240	2,400	18	180	208	$624	312	1,218	47	141.00	2	6				10,751.22		
Florida	58	580.00							3	6								1,746.30		
Idaho	275	2,750.00	93	930	8	80	1	3	6	18	24	72.00	1	3				8,318.65		
Iowa																		263.13		
Kansas									33	66			2	4				3,226.14		
Louisiana	18	180.00																2,124.78		
Michigan	36	360.00																1,484.48		
Minnesota	924	9,240.00							4	8								4,956.74		
Mississippi	3	30.00																1,420.11		
Missouri																		1,733.49		
Montana	264	2,640.00	104	1,040	7	70	42	126	225	675	202	606.00	17	52				7,610.03		
Nebraska									16	32			1	2				10,315.59		
Nevada			175	1,750	23	230					1	3.00						242.72		
New Mexico			34	340	5	50			44	132	6	18.00	13	39				7,881.75		
North Dakota	15	150.00							21	42	76	152.00	56	112				12,660.96		
Oklahoma			2	20					2	4							$1	7,334.53		
Oregon	660	6,600.00	26	260					24	72	3	9.00						7,802.86		
South Dakota	116	1,157.00	12	120					729	1,458	85	170.00	55	110				18,920.70		
Utah	11	110.00	128	1,280	14	140			2	6	139	417.00						1,562.08		
Washington	441	4,410.00	25	250	4	40			7	21	59	177.00						9,507.22		
Wisconsin	9	90.00							1	2								993.34		
Wyoming	239	2,390.00	27	270	1	10			31	93	141	423.00	17	51				4,033.28		
Total	3,563	35,623.85	1,175	11,750	114	1,140	251	753	1,521	4,016	825	2,297.60	169	394	1	3	1	140,491.80	19	190

Sales of Indian lands during fiscal year ended June 30, 1910.

	Original entries.		Receipts—sales and interest.
	Number.	Area.	
Alabama:			
Montgomery—Cherokee Indian school lands	5	212.06	$265.11
Arizona:			
Phoenix—Colorado Indian Reservation	....	....	43,926.25
California:			
Eureka—Round Valley Indian	1	160.00	167.10
Los Angeles—Yuma	193	7,756.54	7,756.54
Oakland—Round Valley	13	1,886.72	4,808.14
Colorado:			
Durango—			
Southern Ute, act Feb. 20, 1895	74	11,535.57	11,460.05
Ceded Ute, acts June 15, 1880, and July 28, 1882	12	1,437.82	633.48
Glenwood Springs—Ute, acts June 15, 1880, and July 28, 1882	348	63,570.26	42,078.23
Montrose—Ute, acts June 15, 1880, and July 28, 1882	804	124,288.33	82,655.22
Idaho:			
Blackfoot—Shoshone and Bannock, town lots	....	....	220.00
Coeur d'Alene	13	1,153.87	1,896.61
Coeur d'Alene, act June 21, 1906	576	89,268.92	54,825.20
Kansas:			
Dodge City—Osage trust and diminished reserve	28	3,679.75	3,507.47
Topeka—Kansas trust and diminished reserve	....	....	18.75
Minnesota:			
Cass Lake—Chippewa	416	49,931.29	28,460.11
Crookston—			
Chippewa	466	65,987.58	36,083.71
Red Lake	8	737.27	88,922.91
Duluth—Chippewa	128	14,658.66	7,468.92
Montana:			
Billings—Crow Indian	272	23,950.32	89,765.63
Kalispel—Flathead	284	34,728.91	86,687.92
Missoula—			
Flathead	379	40,198.09	71,374.28
Bitter Root	1	160.00	888.50
Nebraska:			
O'Neill—Omaha Indian	....	....	14,917.30
North Dakota:			
Devils Lake—Sioux Indian	43	3,126.90	21,051.28
Oklahoma:			
El Reno—Wichita Indian lands	7	855.48	21,135.99
Lawton—Kiowa, Comanche, and Apache	....	....	589,374.48
Oregon:			
La Grande—Umatilla	67	8,446.48	8,684.11
South Dakota:			
Aberdeen—			
Cheyenne River	787	123,960.10	110,714.37
Standing Rock	223	35,530.60	34,020.27
Gregory—Rosebud	2,529	370,929.58	408,111.93
Lemmon—Standing Rock	511	76,403.94	64,981.66
Pierre—Lower Brule	22	2,735.20	27,500.29
Utah:			
Vernal—Uintah Indian	298	38,579.23	26,740.00
Washington:			
Spokane—			
Colville Indian	126	15,713.08	9,825.35
Spokane Indian	15	2,236.25	2,236.25
Waterville—Colville	75	7,046.80	9,560.33
Wyoming:			
Lander—Shoshone or Wind River Indian	241	22,352.57	24,827.94
Total	8,965	1,243,218.17	2,037,551.68

REPORT OF THE COMMISSIONER OF PENSIONS.

COMMISSIONERS OF PENSIONS SINCE 1833.

Name.	By whom appointed.	Whence appointed.	Date of commission.
Edwards, James L	Jackson	Virginia	Mar. 3, 1833
Heath, James E	Fillmore	do	Nov. 27, 1850
Waldo, Loren P	Pierce	Connecticut	Mar. 17, 1853
Minot, Josiah	do	New Hampshire	Aug. 1, 1855
Whiting, George C	do	Virginia	Jan. 19, 1857
Barrett, Joseph H	Lincoln	Ohio	Apr. 15, 1861
Cox, Christopher C	Johnson	Maryland	July 28, 1868
Van Aernam, Henry	Grant	New York	May 1, 1869
Baker, James H	do	Minnesota	Apr. 20, 1871
Atkinson, Henry M	do	Nebraska	Mar. 26, 1875
Gill, Charles R	do	Wisconsin	Feb. 10, 1876
Bentley, John A	do	do	Mar. 28, 1876
Dudley, William W	Garfield	Indiana	June 27, 1881
Clarke, Otis P. G	Arthur	Rhode Island	Nov. 15, 1884
Black, John C	Cleveland	Illinois	Mar. 19, 1885
Tanner, James	Harrison	New York	Mar. 27, 1889
Raum, Green B	do	Illinois	Oct. 19, 1889
Lochren, William	Cleveland	Minnesota	Apr. 13, 1893
Murphy, Dominic I	do	Pennsylvania	May 28, 1896
Evans, Henry Clay	McKinley	Tennessee	Apr. 1, 1897
Ware, Eugene F	Roosevelt	Kansas	May 10, 1902
Warner, Vespasian	do	Illinois	Mar. 4, 1905
Davenport, James L	Taft	New Hampshire	Nov. 26, 1909

REPORT OF THE COMMISSIONER OF PENSIONS.

DEPARTMENT OF THE INTERIOR,
BUREAU OF PENSIONS,
Washington, D. C., September 1, 1910.

SIR: I have the honor to submit this my annual report for the fiscal year ended June 30, 1910, consisting of a general statement and exhibits 1 to 10, inclusive, showing the operations of the Bureau of Pensions, including the pension agencies.

GENERAL STATEMENT.

In Exhibit 1 will be found the number of pensioners of each class on the roll at the beginning of the year, the number added to and the number dropped from the roll during the year. The number of pensioners on the roll at the close of the year was 921,083, a decrease during the year of 25,111. The number of new pensioners whose names were added to the roll during the year and the number dropped for the various causes were as follows:

Gains and losses in pension roll during fiscal year 1910.

Gains:	
Original allowances	27,988
Restoration allowances	516
Renewal allowances	715
Total	29,219
Losses:	
By death	51,851
By remarriage	969
By minors attaining the age of 16 years	929
By failure to claim pension for three years	236
From other causes	345
Total	54,330

Deducting the total number of new names added to the roll from the total number dropped leaves a net loss to the roll, as before stated, of 25,111.

The number of survivors of the civil war on the pension roll at the close of the year was 562,615, a net reduction during the year of 31,345. The total number of survivors whose names were dropped from the roll during the year on account of death was 35,312. The difference in these two numbers is accounted for by the fact that several thousand new names of survivors of the civil war were placed on the roll during the year.

In the following table is shown the number of pensioners on the roll, by classes, at the close of the fiscal years 1910 and 1909, together with the net gain or loss in each class, as the case may be:

Pensioners on the roll June 30, 1910, and June 30, 1909.

	1910.	1909.	Gain.	Loss.
Revolutionary war:				
Daughter	1	1		
War of 1812:				
Widows	338	395		57
Indian wars:				
Survivors	1,560	1,744		184
Widows	2,822	2,881		59
War with Mexico:				
Survivors	2,042	2,459		417
Widows	6,359	6,633		274
Civil war:				
Act of February 6, 1907	362,433	358,315	4,118	
General law—				
Invalids	121,581	131,065		9,484
Widows	70,587	73,356		2,769
Minor children	445	498		53
Mothers	2,391	2,996		605
Fathers	368	493		125
Brothers, sisters, sons, and daughters	300	280	20	
Helpless children	533	514	19	
Act of June 27, 1890—				
Invalids	78,601	104,581		25,980
Minor children	4,009	4,010		1
Helpless children	335	323	12	
Act of April 19, 1908—				
Widows	220,826	211,781	9,045	
Army nurses	442	478		36
War with Spain:				
Invalids	22,783	21,967	816	
Widows	1,183	1,159	24	
Minor children	330	333		3
Mothers	3,072	3,097		25
Fathers	512	529		17
Brothers and sisters	7	8		1
Helpless children	2	2		
Regular establishment:				
Invalids	13,180	12,426	754	
Widows	2,727	2,648	79	
Minor children	136	129	7	
Mothers	1,011	923	88	
Fathers	152	154		2
Brothers and sisters	7	7		
Helpless children	8	9		1
Total	921,083	946,194	14,982	40,093
Net loss				25,111

The number of soldiers and sailors on the pension roll at the close of the year was 602,180, the number of widows and dependents was 318,461, and the number of army nurses 442.

The annual value of the pension roll at the close of the year was $158,332,391.82. This is the amount which would be required to pay all the pensioners on the roll at the close of the year for one entire year, at the rates of pension then existing, should no new pensioners be added to the roll and none be dropped therefrom. This is a decrease from the previous year of $2,350,478.50. The average annual value of each pension at the close of the year was $171.90, an increase of $2.08 per pensioner as compared with the previous year. This increase was due to the increase of pensions granted by the bureau upon applications filed by pensioners and to the increased rates granted by Congress, through what are known as special acts. The number of special-act pensioners on the roll at the close of the year was 19,422, an increase of 3,015. The annual value of the special-act allowances on the roll at the close of the year was $5,725,246, an increase of $879,120. There were some 1,300 special acts passed near the close of the session, in which it was not possible to issue certificates until after the close of the fiscal year. If all the special acts could have been included the increase in the annual value due thereto would have been $894,495. As before stated, the increase in the annual value of each pension is $2.08, which makes an increase of $1,915,852.64 in the annual value of the pension roll due to increased pensions. It will be seen that nearly one-half of this increase is due to pensions granted by special acts of Congress.

The average annual value of the pension of each pensioner, under the various laws, for each year for the last five years, is shown by the following table:

Average value of each pension for the last five years.

	1910.	1909.	1908.	1907.	1906.
Average annual value of each pension	$171.90	$169.82	$167.59	$145.60	$138.18
Regular establishment	173.26	181.77	173.76	173.12	173.35
General law, civil war	224.44	219.96	215.30	204.20	191.43
Act of June 27, 1890	139.95	135.55	130.75	112.32	114.33
War with Spain	127.52	126.83	126.87	127.19	127.33
Act of Feb. 6, 1907	170.91	169.40	167.70	170.09	....
Act of Apr. 19, 1908	145.16	145.42	145.10	....	....

In Exhibit 2 will be found the amounts of first payments made by pension agents on each class of new certificates issued during the fiscal year. The total amount of first payments was $4,858,504.27, upon 91,448 issues, an average of $52.13 each. The first payment made upon a new certificate is the amount due thereon from the date of commencement of the pension provided in the certificate to the end of the last quarter. There were 8,009 certificates issued by the bureau during the year which were not received by the pension agents in time to make the first payment before the close of the year. The amount due on such certificates was $495,979.37. The following table shows the first payments made each year during the last five years:

First payments made during the last five fiscal years.

Fiscal year.	Number.	Amount.	Average
1910	91,448	$4,858,504	$52.13
1909	124,634	6,489,416	52.07
1908	316,500	13,394,633	42.32
1907	186,973	6,643,768	35.53
1906	111,803	6,152,182	55.02

Exhibit 3 shows the appropriations and disbursements for the fiscal year 1910 and the unexpended balances at the close of the year, a summary of which is as follows:

Appropriations and disbursements for fiscal year ended June 30, 1910.

Appropriation for pensions	$160,000,000.00
Repayments to the appropriation	3,206.47
Total amount available for pensions	160,003,206.47
Amount disbursed	159,974,056.08
Unexpended balance	29,150.39
Appropriation for medical examinations	400,000.00
Repayments to the appropriation	3.00
Total amount available	400,003.00
Amount expended	247,687.00
Unexpended balance	152,316.00
Appropriation for salaries and clerk hire, pension agencies	472,000.00
Amount disbursed	461,519.42
Unexpended balance	10,480.58
Appropriation for rent, contingent expenses, and inspection of agencies	36,000.00
Repayments to the appropriation	.19
Total amount available	36,000.19
Amount disbursed	15,355.78
Unexpended balance	20,644.41
Amount due for supplies purchased but not paid for until after close of year	11,430.25
Unexpended balance	9,214.16
Appropriation for salaries, Bureau of Pensions	1,605,470.00
Amount disbursed	1,556,690.33
Unexpended balance	48,779.67
Appropriation for salaries, per diem and expenses, special examiners	329,000.00
Amount expended	301,667.68
Unexpended balance	27,332.32
Appropriation for installation of card index system	20,000.00
Amount expended	16,520.03
Unexpended balance	3,479.97

Summary of unexpended balances at close of fiscal year 1910, exclusive of pensions, covered into the Treasury.

Salaries in bureau	$48,779.67
Salaries, per diem, and expenses special examiners	27,332.32
Fees, examining surgeons	152,316.00
Salaries and clerk hire, pension agencies	10,480.58
Rent, contingent expenses, and inspection of agencies	9,214.16
Installation card-index system	3,479.97
Total	251,602.70

The amount expended for navy pensions was $5,335,457.27. In the act making appropriation for the payment of pensions it was provided that navy pensions should be paid from the income of the navy-pension fund, so far as such fund might be available for that purpose. The income from this fund available for such purpose was $362,299.27. The income from the navy-pension fund pays only about 7 per cent of the amount required for navy pensions.

Interest on the navy-pension fund and the amounts paid for navy pensions each year for the past five years.

Fiscal year.	Interest.	Navy pensions.	Fiscal year.	Interest.	Navy pensions.
1910	$362,299	$5,335,457	1907	$361,406	$4,248,712
1909	371,345	5,337,014	1906	363,619	4,204,004
1908	360,409	4,934,350			

In Exhibit 4 will be found the amounts disbursed by each of the 18 pension agencies under each appropriation for the fiscal year 1910. The largest amount expended for pensions at any one agency was at Topeka, $18,370,036, while the smallest amount was at the Concord agency, $2,771,998.71. The amount disbursed for pensions by pension agents was $159,972,015.18, which, with the amount paid out by the Treasury Department in treasury settlements, $2,040.90, made the disbursements for pensions for the fiscal year $159,974,056.08, as shown in Exhibit 3. This is a decrease as compared with the previous year of $1,999,647.69.

The amount expended for fees of examining surgeons, as shown by Exhibits 3 and 4, was $186,870.45. It was not possible, however, to pay for the medical examinations held during the last quarter of the fiscal year until after the close of the year. These accounts are now being settled, and it is estimated that the total cost for medical examinations held during the year will be $247,687.

In the following a summary is presented showing the amounts disbursed for pensions during the year to pensioners, by classes:

Classification of disbursements.

	Amount.	Total.
Regular establishment:		
Invalids	$2,187,267.05	
Widows, minors, and dependents	813,723.07	$3,000,990.12
Civil war:		
Act of February 6, 1907		60,821,754.98
General law—		
Invalids	32,951,289.41	
Widows, minors, and dependents	11,705,814.91	44,657,104.82
Army nurses		67,003.93
Act of June 27, 1890—		
Invalids	12,660,420.65	
Minors and helpless children	964,781.44	13,625,202.09
Act of April 19, 1908, widows		31,855,265.75
		151,026,331.07

Classification of disbursements—Continued.

	Amount.	Total.
War with Spain:		
Invalids	$2,970,601.92	
Widows, minors, and dependents	837,317.99	$3,807,919.91
War of 1812:		
Widows		51,279.90
War with Mexico:		
Survivors	521,385.79	
Widows	942,598.86	1,463,984.65
Indian wars:		
Survivors	184,294.60	
Widows	437,214.93	621,509.53
Treasury settlements		2,040.90
Grand total		159,974,056.08

There was disbursed for pensions from July 1, 1790, to June 30, 1865, $96,445,444.23. The amounts disbursed each year since that date, the entire cost of administration, including the conduct of the bureau, the agencies, and the fees of examining surgeons, and the number of pensioners on the roll at the close of each year, are shown in the following table:

Disbursements for pensions and for maintenance of pension system, 1866 to 1910.

Fiscal year.	Paid as pensions.	Cost, maintenance, and expenses.	Total.	Number of pensioners.
1866	$15,450,549.88	$407,165.00	$15,857,714.88	126,722
1867	20,784,789.69	490,977.35	21,275,767.04	155,474
1868	23,101,509.36	553,020.34	23,654,529.70	169,643
1869	28,513,247.27	564,526.81	29,077,774.08	187,963
1870	29,351,488.78	600,997.86	29,952,486.64	198,686
1871	28,518,792.62	863,079.00	29,381,871.62	207,495
1872	29,752,746.81	951,253.00	30,703,999.81	232,299
1873	26,982,063.89	1,003,200.64	27,985,264.53	238,411
1874	30,206,778.99	966,794.13	31,173,573.12	236,241
1875	29,270,404.76	982,695.35	30,253,100.11	234,821
1876	27,936,209.53	1,015,078.81	28,951,288.34	232,137
1877	28,182,821.72	1,034,459.33	29,217,281.05	232,104
1878	26,786,009.44	1,032,500.09	27,818,509.53	223,998
1879	33,664,428.92	837,734.14	34,502,163.06	242,755
1880	56,689,229.08	935,027.28	57,624,256.36	250,802
1881	50,583,405.35	1,072,059.64	51,655,464.99	268,830
1882	54,313,172.05	1,466,236.01	55,779,408.06	285,697
1883	60,427,573.81	2,591,648.29	63,019,222.10	303,658
1884	57,912,387.47	2,835,181.00	60,747,568.47	322,756
1885	65,171,937.12	3,392,576.34	68,564,513.46	345,125
1886	64,091,142.90	3,245,016.61	67,336,159.51	365,783
1887	73,752,997.08	3,753,400.91	77,506,397.99	406,007
1888	78,950,501.67	3,515,057.27	82,465,558.94	452,557
1889	88,842,720.58	3,466,968.40	92,309,688.98	489,725
1890	106,093,850.39	3,526,382.13	109,620,232.52	537,944
1891	117,312,690.50	4,700,636.44	122,013,326.94	676,160
1892	139,394,147.11	4,898,665.80	144,292,812.91	876,068
1893	156,906,637.94	4,867,734.42	161,774,372.36	966,012
1894	139,986,726.17	3,963,976.31	143,950,702.48	969,544
1895	139,812,294.30	4,338,020.21	144,150,314.51	970,524
1896	138,220,704.46	3,991,375.61	142,212,080.07	970,678
1897	139,949,717.35	3,987,783.07	143,937,500.42	976,014
1898	144,651,879.80	4,114,091.46	148,765,971.26	993,714
1899	138,355,052.95	4,147,517.73	142,502,570.68	991,519
1900	138,462,130.65	3,841,706.74	142,303,887.39	993,529

Disbursements for pensions and for maintenance of pension system, 1866 to 1910—Cont'd.

Fiscal year.	Paid as pensions.	Cost, maintenance, and expenses.	Total.	Number of pensioners.
1901	$138,531,483.84	$3,868,795.44	$142,400,279.28	997,735
1902	137,504,267.99	3,831,378.96	141,335,646.95	999,446
1903	137,759,653.71	3,993,216.79	141,752,870.50	996,545
1904	141,093,571.49	3,849,366.25	144,942,937.74	994,762
1905	141,142,861.33	3,721,832.82	144,864,694.15	998,441
1906	139,000,288.25	3,523,269.51	142,523,557.76	985,971
1907	138,155,412.46	3,309,110.44	141,464,522.90	967,371
1908	153,093,086.27	2,800,963,36	155,894,049.63	951,687
1909	161,973,703.77	2,852,583.73	164,826,287.50	946,194
1910	159,974,056.08	2,657,673.86	162,631,729.94	921,083
Total	3,976,611,125.58	118,362,734.68	4,094,973,860.26	....

The cost of administration in connection with the adjudication of pension claims and the payment of pensions during the last fiscal year was $2,657,673.86, a reduction in the running expenses of the bureau and agencies of nearly $200,000 as compared with the previous year. This is the smallest amount expended for such purpose in any one year for the last twenty-seven years. In 1883, when the number of pensioners was only 303,658 and the number of certificates issued was 64,450, the cost of administration was $2,591,648.29, only slightly less than in 1910, when 97,242 certificates were issued and the number of pensioners was 921,083. The amount expended for pensions in 1883 was $60,427,573.81, while in 1910 the amount was $159,974,056.08.

PENSIONS OF THE SEVERAL WARS AND OF THE PEACE ESTABLISHMENT.

The amounts that have been paid for pensions to soldiers, sailors, and marines, their widows, minor children, and dependent relatives, on account of military and naval service since the foundation of the Government to June 30, 1910, are as follows:

War of the Revolution (estimate)	$70,000,000.00
War of 1812 (service pension)	45,808,676.74
Indian wars (service pension)	10,617,119.00
War with Mexico (service pension)	43,956,768.72
Civil war	3,837,488,171.42
War with Spain and insurrection in Philippine Islands	30,191,725.12
Regular establishment	18,508,018.14
Unclassified	16,486,090.67
Total disbursements for pensions	4,073,056,569.81

In Exhibit 5 is shown the number of pensioners, by classes, on the roll of each agency and the total number on the roll of each agency June 30, 1910, and June 30, 1909.

Pensioners of each class were on the roll of each of the agencies, with the exception of survivors of the Indian wars, none of this class being on the roll of either the Augusta or Concord agency. A decrease in the number of pensioners is shown at each of the agencies, the smallest decrease, 93, being at the San Francisco agency and the largest, 2,932, at the Buffalo agency. The decrease at the Columbus agency was 2,907 and at the Topeka agency 2,904, the total decrease being 25,111.

In Exhibit 6 is shown the number of pensioners on the roll at the close of the year in each State and Territory of the United States, each insular possession, and each foreign country, and also the amounts paid to pensioners therein during the last fiscal year. The number of pensioners in each of the States of Pennsylvania and Ohio, as well as the amounts paid in each of those States, exceeds that of any other State.

In Exhibit 7 is shown the number of pensioners on the roll at each rate at the close of the fiscal year, with the exception of those pensioned by special acts of Congress, those pensioned by special acts being shown in Exhibit 8.

Exhibit 9 is a statement of pension certificates issued during the year. The following summary shows the number of issues by classes:

Pension certificates issued during the fiscal year.

Originals	28,027	Restorations	548
Increases	38,288	Renewals	1,694
Additionals	33	Supplementals	319
Reissues	28,333	Total	97,242

The classes of certificates may be defined as follows:

Originals.—Cases in which no pension has before been granted.

Increases.—Cases in which increased rates are granted.

Additionals.—Issues under act of June 27, 1890, in lieu of pension under the general law.

Reissues.—Issues to allow for additional disabilities under the general law, to correct errors in former issues, and to allow pension under the general law and under the act of February 6, 1907, in lieu of pension under the act of June 27, 1890.

Restorations.—Issues to restore to the roll from date of last payment.

Renewals.—Issues to renew pension from a date when new title is shown.

Supplementals.—Cases in which title exists under different laws and issue is made under one law for a period not covered by the other issue.

The total number of pension certificates issued in the last ten years is as follows:

Pension certificates issued during last ten years.

1901	109,668	1906	136,905
1902	119,824	1907	236,516
1903	132,821	1908	328,676
1904	153,938	1909	123,742
1905	185,242	1910	97,242

The number of certificates issued last year was the least issued in any one year during the last ten years. The decrease is largely due to the fact that nearly all of the surviving soldiers and sailors of the civil war are now over 62 years of age and few claims are being filed by them under the act of June 27, 1890. Most of them are now pensioned under the act of February 6, 1907, and apply for increase only as they become 70 or 75 years of age.

In addition to pension certificates, as above stated, there were also issued during the year 2,487 duplicates of certificates lost or destroyed, and allowances of accrued pension made in 21,089 cases, being issues made for payment of pension, in cases of deceased pensioners, from date of last payment to date of death.

Exhibit 10 is a summary of the pending files of the bureau at the close of the year, arranged in such a way as to show the number of claims of each class on file, and also the number of claims of each class based upon disabilities incurred, or service rendered, in each of the wars and in the regular establishment.

The total number of applications for pension of all kinds pending at the close of the year was 47,295, as against 66,226 pending at the beginning of the year. An early consolidation of several of the adjudicating divisions being contemplated, the claims in the pending files were examined during the month of June and all those which had not been called up, or in which no evidence had been filed, for over six months, were removed therefrom and placed in the abandoned files of the bureau. This accounts for the large decrease in the number of claims in the pending files.

If hereafter the prosecution of any of the claims in the abandoned files is resumed, and material evidence is filed therein, they will be returned to the pending files for adjudication.

A recapitulation of the pending claims is as follows:

Claims pending at close of fiscal year, June 30, 1910.

Civil war	34,818	Old wars	13
War with Spain	9,135	Regular establishment	2,949
Mexican war	194	Total	47,295
Indian wars	186		

In addition to pension claims as above noted, there were pending before the bureau June 30, 1910, 25 applications for military bounty land warrants.

ACT OF FEBRUARY 6, 1907.

From the date of its approval to June 30, 1910, 567,148 applications for pension or increase of pension were filed under the act of February 6, 1907. Some of them, however, were duplicates of former ones filed by the same persons and did not constitute separate claims. During the past year 57,634 certificates were issued under this law.

The following statement shows the number of certificates issued under this law each year:

Certificates issued under act of February 6, 1907.

1907	119,337
1908	257,855
1909	67,219
1910	57,634
Total	502,045

Of the above only 19,532 were original allowances or certificates issued to persons who were not already on the pension roll.

The following table shows the ages, at the dates the claims were allowed, of the survivors of the civil war and of the war with Mexico who have been granted pensions under the act of February 6, 1907. The number of survivors in this table does not agree with the number of certificates issued, for the reason that increase issues were included under the certificates, while they were omitted in tabulating the number at the various ages. There were also some claims allowed on June 30 which were included in the table of ages, though not included in certificates issued, as the certificates could not be written until July 1.

Suvivors of Mexican and civil wars, by ages.

Age.	Number of survivors.		Age.	Number of survivors.	
	Civil war.	Mexican war.		Civil war.	Mexican war.
62	99,313		83	1,452	226
63	35,512		84	1,169	174
64	31,828		85	840	123
65	26,635		86	731	72
66	25,367		87	409	51
67	19,333		88	264	38
68	14,810		89	125	21
69	8,529		90	82	13
70	58,632		91	48	8
71	17,014	3	92	40	4
72	14,654	1	93	23	2
73	12,311	4	94	16	2
74	7,449	17	95	4	
75	17,068	69	96	6	
76	8,632	132	97	5	
77	6,220	187	98	7	
78	5,065	265	103	1	
79	4,026	344	107	1	
80	3,796	417	108	1	
81	2,406	369			
82	2,080	368	Total	425.904	2,910

ACT OF APRIL 19, 1908.

The second section of the act of April 19, 1908, grants pension at the rate of $12 per month to widows of persons who served ninety days or more in the army or navy of the United States during the civil war, and were honorably discharged, without regard to their pecuniary condition, provided they were married prior to June 27, 1890.

The records show that prior to the close of the last fiscal year 67,903 applications under this law were filed and that up to that time 49,684 certificates had been issued thereunder.

TEN YEARS' SUMMARY.

The following table shows the operations of the bureau in the adjudication of pension claims each year for the past ten years. "No-benefit cases" are allowances under one law when the claimants are already in receipt of pension at an equal or higher rate under another law. As two pensions under different laws can not be paid to the same person covering the same period, the applicant in a case of this kind is permitted to elect which pension he will receive.

It should be stated that the number of applications filed during each year is not the exact number of separate or distinct claims filed. It is very frequently found, upon an examination of the papers, that a declaration is a duplicate of a former application filed by the same person, and hence it is not considered or adjudicated as a separate claim.

Summary of work for ten years ending June 30, 1910.

Year.	Cases on hand.	Office force.	Applications filed.	Admissions.	Rejections.	No-benefit cases.	Total number of cases adjudicated.
1901	403,569	1,741	219,179	106,990	110,254	9,836	227,080
1902	339,436	1,741	188,626	117,268	118,464	10,441	246,173
1903	304,809	1,736	225,871	130,109	113,794	8.203	252,106
1904	285,523	1,734	254,333	151,211	108,114	8,725	268,050
1905	220,822	1,709	217,435	182,207	81,853	4,915	268,975
1906	182,453	1,684	201,322	138,809	82,938	4,943	226,690
1907	356,181	1,534	440,517	238,249	60,573	3,892	302,715
1908	123,483	1,464	185,622	325,140	59,449	3,403	387,992
1909	66,226	1,385	152,009	123,610	52,199	1,772	177,581
1910	47,295	1,317	132,012	97,207	38,032	1,198	136,437

SPECIAL ACTS.

Since 1861 there have been granted by special acts of Congress 32,401 pensions and increases of pensions, of which 19,422 are now on the roll, with an annual face value of $5,725,246. Only a little more than one-half of said amount is properly chargeable to special acts, as most of the beneficiaries had been previously pensioned under general laws at lower rates.

During the second session of the Sixty-first Congress 6,063 persons were included in the special acts passed, at the rates specified in the summary following.

Pensions granted by special act during the second session of the Sixty-first Congress.

Rates specified.	Number granted.	Rates specified.	Number granted.
$100	1	$14	4
$75	1	$12	482
$72	1	$10	9
$60	1	$8	12
$55	1	$6	3
$50	63	Repealed	1
$46	3	Rate undetermined	2
$45	2	Inoperative:	
$40	164	$50	1
$36	161	$40	2
$35	5	$36	3
$30	1,921	$30	27
$25	19	$25	2
$24	2,639	$24	26
$22	1	$20	2
$20	842	$16	1
$18	1	$12	1
$17	15		
$16	123	Total	6,063
$15	21		

Of the above, 563 were granted to persons never before on the pension roll and 5,500 to persons then receiving smaller pensions.

The annual value of said special acts is $1,838,088, and the annual increase in payment of pensions due to such acts is $894,495.

The following statement shows the number of pensions and increases of pensions granted by special acts during each Congress since March 4, 1861:

Number of pensions granted by special acts each Congress since March 4, 1861.

Congress.	Number.	Congress.	Number.
Thirty-seventh (1861–1863)	12	Fifty-first (1889–1891)	1,388
Thirty-eighth (1863–1865)	27	Fifty-second (1891–1893)	217
Thirty-ninth (1865–1867)	138	Fifty-third (1893–1895)	119
Fortieth (1867–1869)	275	Fifty-fourth (1895–1897)	378
Forty-first (1869–1871)	85	Fifty-fifth (1897–1899)	604
Forty-second (1871–1873)	167	Fifty-sixth (1899–1901)	1,391
Forty-third (1873–1875)	182	Fifty-seventh (1901–1903)	2,171
Forty-fourth (1875–1877)	98	Fifty-eighth (1903–1905)	3,355
Forty-fifth (1877–1879)	230	Fifty-ninth (1905–1907)	6,030
Forty-sixth (1879–1881)	96	Sixtieth (1907–1909)	6,600
Forty-seventh (1881–1883)	216	Sixty-first (second session)	6,063
Forty-eighth (1883–1885)	598		
Forty-ninth (1885–1887)	856	Total	32,401
Fiftieth (1887–1889)	1,015		

CRIMINAL PROSECUTIONS.

There were 89 new cases presented by the bureau to the Department of Justice for prosecution on account of offenses against the pension laws, and indictments were found in 71 cases.

There were 61 cases brought to trial during the year, in 55 of which convictions were secured. Only 9 of these were cases against persons who had rendered military or naval service. At the close of the year there were 145 cases pending in the hands of United States attorneys.

Three civil suits were instituted during the year; one was compromised and two were settled by payment to the United States of the amounts involved. There were four suits pending in the courts at the close of the year.

Money recovered from all sources, including reclamation on forged checks, amounted to $20,557.38.

BOUNTY-LAND WARRANTS.

During the year four original military bounty-land warrants were issued, granting 560 acres of land; and duplicates of two 80-acre, two 120-acre, and three 160-acre warrants lost or destroyed were also issued. Service to give title to bounty land must have been for at least fourteen days, or in a battle, prior to March 3, 1855; and if in the Regular Army or Navy must have been in some war in which the United States Government was engaged.

The following statement shows the total number of bounty-land warrants of all classes issued by the bureau (including partial estimate of those issued for service in the Revolutionary war) and the number of acres granted to June 30, 1910:

Bounty-land warrants issued to June 30, 1910.

	Number.	Acres.
War of the Revolution	16,663	2,666,080
War of 1812, acts prior to 1850	29,471	4,891,520
Act of 1847, Mexican war	88,274	13,213,640
Act of 1850, war 1812, Mexican and Indian wars	189.146	13,168,560
Act of 1852, war of 1812, Mexican and Indian wars	11,992	694,400
Act of 1855, war of 1812, Mexican and Indian wars	263.136	34,156,870
Total	598,682	68,791,070

This bureau has no record of the warrants issued directly from the General Land Office under special acts of Congress, or of those issued on account of the Virginia military land grants satisfied by the United States after the cession of the Northwestern Territory, and they are not included in the above table.

REIMBURSEMENT CLAIMS.

In accordance with an act approved March 4, 1909, claims for reimbursement for expenses of the last sickness and burial of deceased pensioners, which prior to that date were settled by the Auditor for the Interior Department, are now adjudicated in this bureau. There were 2,415 such claims pending July 1, 1909, 7,230 were received during the year, and 69, which had been formerly disallowed, were reopened, making a total of 9,714. Of these, 6,478 were allowed, 1,029 disallowed, and 695 abandoned, leaving 1,512 pending at the close of the year.

CARD INDEX OF RECORDS AND REMOVAL OF USELESS PAPERS.

The records of the bureau are kept in large, heavy, cumbersome books. Upon these books are inscribed the names of all applicants for pension, numbering into the millions. By constant handling the writing has become partially effaced and many of the books worn and ready to fall in pieces. It became apparent about four years ago that a different method of keeping the records should be adopted, and a card system was decided upon. The carding of the records was commenced, and a few cards were written in 1906; but the passage of the act of February 6, 1907, so increased the regular work of the bureau that it became necessary to suspend the carding for a time, as the services of all of the clerks were required in the adjudication of claims.

In August, 1907, the work was resumed in a small way, and after the necessary appropriation for file cases was obtained in 1908 the force engaged thereon was gradually increased until at the present time 160 clerks are employed upon it. Up to this date 3,067,611 cards have been written, compared, arranged, and filed. It is estimated that there will be 7,000,000 cards when the record is complete. This, of course, does not mean that there were 7,000,000 soldiers and sailors, but that three sets of cards are being written, one set to be arranged alphabetically, one numerically, and one by the organizations in which service was rendered. With the complete card record a claim can be found with the name alone, while at present it is necessary to have, not only the name, but the number of the claim or the military or naval service of the soldier or sailor. The work is going forward as rapidly as possible, and it is believed that it will be finished in two years.

There are over 74,000 claims on account of service in the Revolutionary war. The papers in these claims are in bad condition and difficult to handle. They are being put in as good order as possible and placed in flat files, where they will be easy of access and better preserved from injury than when tied in bundles as at present. A card index for these old claims is also being prepared. Fourteen clerks are engaged in connection with the Revolutionary work.

On the fourth floor of the building are stored all of the admitted claims. Each claim, with the papers pertaining thereto, is kept in a strong jacket and tied with tape. Nearly all space on this floor is utilized, and more will be needed in the near future for admitted and abandoned claims. An estimate of the weight of papers filed there was made, with the result that it was found there were 910 long tons weight occupying 27 rooms. Congress, upon your request, gave permission to take from these old cases the waste paper. January 20, 1910, 40 experienced clerks were assigned to the task of removing these papers, with instructions not to take out a paper of permanent value or historical interest. A few weeks later the force was increased to 100 and has been maintained at about that number ever since. Although the removal of papers from claims that have been accumulating dust for years is not work of a pleasant character, there has been little disposition on the part of the clerks to avoid it.

The work was commenced with widow's certificate No. 1 and has progressed to No. 540999, the claim bearing the latter number having been completed and returned to the admitted files the afternoon of June 30, 1910. About 62 long tons of waste papers have been removed and turned over to the department contractor. Two and one-half rooms have been vacated. If this gain is maintained throughout the admitted files there will be a result of eight vacant rooms and the removal of about 200 long tons of waste.

Until the card system is completed, the waste papers removed from the old files and the Revolutionary claims placed in flat files, every employee of this bureau will have work from 9 o'clock until half-past 4. The value of this work can be appreciated only by those who know the existing conditions.

By concentrating the force of the Pension Bureau on the second and third floors of the building room has been made on the first floor for the Indian Bureau.

HISTORICAL.

Mrs. Phoebe M. Palmeter, aged 89 years, of Brookfield, N. Y., pensioned by a special act of Congress as the daughter of Jonathan Wooley, who served in a New Hampshire company, is the only pensioner on account of the Revolutionary war remaining on the roll. The last widow pensioner of that war was Esther S. Damon, of Plymouth Union, Vt., who died November 11, 1906, aged 92 years. The last survivor of the war of the Revolution was Daniel F. Bakeman, who died at Freedom, Cattaraugus County, N. Y., April 5, 1869, aged 109 years 6 months and 8 days.

The last surviving pensioned soldier of the war of 1812 was Hiram Cronk, of Ava, N. Y., who died May 13, 1905, aged 105 years and 16 days. The names of 338 widows of the war of 1812 remained on the pension roll June 30, 1910.

MISCELLANEOUS.

Most of the surgeons appointed to examine applicants for pension, or increase of pension, are organized into boards of three members each; but it is sometimes necessary to have single surgeons or specialists make examinations of claimants who can not go before a board, or who require the attention of a specialist. On June 30, 1910, there were 4,660 examining surgeons, and during the year 31,307 examinations were made at an expense of $247,687.

The mail received during the year, including applications for pension, numbered 1,898,539 pieces, and the outgoing mail aggregated 858,947 pieces, making a total of 2,757,486 pieces handled, an average of about 9,000 daily.

During the year 136,437 pension claims were adjudicated, of which 97,207 were admitted, 38,032 rejected, and 1,198 approved for allowance in which no certificates were issued because they would not have been of benefit to the applicants. Many of the claims rejected were applications for increase, in which, on medical examination, no increase of disability was shown. There were also 76 claims for military bounty-land warrants adjudicated during the year, of which 9 were allowed and 67 rejected.

Out of 4,894 appeals decided by the department during the year the bureau was reversed in only 265 cases, being 5.42 per cent of the number decided.

The bureau is required by law to give a notice of thirty days to pensioners before reducing their pensions or dropping their names from the roll. During the year 201 pensioners were dropped from the roll for various causes, being 420 less than were dropped the preceding year. The pensions of 37 persons were reduced, and reissues were made in 52 cases to recover erroneous payments.

Since the passage of the act of March 3, 1899, providing for the division of pensions of resident pensioners of the United States who shall desert their wives or minor children, or who are inmates of national or state soldiers and sailors' homes, 10,843 claims have been filed thereunder, 6,742 of which have been allowed.

During the year there were received in the bureau 132,012 new applications for pension or increase of pension. There were also received 6,965 applications for accrued pension due at death of pensioners, 7,230 applications for reimbursement for the expenses of the last sickness and burial of deceased pensioners, and 73 applications for military bounty-land warrants.

The number of cases for special examination on hand July 1, 1909, was 3,486 and the number referred for special examination during the year was 6,254, making a total of 9,740. Of these 6,917 were disposed of during the year, leaving 2,823 on hand June 30, 1910. The average number of special examiners employed was 123, and the average number of cases disposed of per examiner was 56.

Very respectfully,

J. L. DAVENPORT,
Commissioner of Pensions.

The SECRETARY OF THE INTERIOR.

EXHIBIT 1.—*Pensioners added to and dropped from the roll during the year, and the annual value of the pension of each class on the roll June 30, 1910.*

Classes.	Pensioners on roll at beginning of year.	Pensioners added to the roll.			Pensioners added to classes by transfer from other classes.					Total pensioners added to classes during the year.	Grand total.	Actual loss to the roll during the year.					Loss to one class by allowance under another class to same person.	Total loss to the roll.	Pensioners on the roll at close of the year.	Annual value.
		Original.	Restoration.	Renewal.	Original.	Restoration.	Renewal.	Additional.	Reissue.			By death.	By remarriage.	Minors by legal limitation.	By failure to claim.	By other causes.				
Regular establishment.																				
Army:																				
Invalids	9,834	828	3	7					4	842	10,676	304			7	17	30	358	10,318	$1,693,500.00
Widows, etc	2,552	234	1	1	1				2	239	2,791	103	30	10				143	2,648	503,150.00
Navy:																				
Invalids	2,592	412	3	11	2					428	3,020	121			3	19	15	158	2,862	496,211.22
Widows, etc	1,318	125							1	126	1,444	33	11	7				51	1,393	290,952.00
Civil war.																				
Act February 6, 1907:																				
Army	345,138	2,866	229	66		4	52		23,767	26,994	372,132	20,481			1	39	2,477	22,998	349,134	59,738,864.00
Navy	13,177	337		2	1		2		747	1,089	14,266	900				2	65	967	13,299	2,211,342.00
General law:																				
Army—																				
Invalids	129,836	54	8	16		11	872		2,808	3,769	133,605	8,174			25	6	4,999	13,204	120,401	32,238,429.50
Nurses	478	3								3	481	39						39	442	65,604.00
Widows, etc	77,065	943	24	502			2		156	1,627	78,692	4,739	184	133	9	19	11	5,095	73,597	11,342,648.00
Navy—																				
Invalids	1,229			1			8		86	95	1,324	97			1		46	144	1,180	323,598.00
Widows, etc	1,073	11		2					12	25	1,098	68	1	1				70	1,028	176,580.00
Act June 27, 1890:																				
Army—																				
Invalids	100,916	408	109	8		1	2	26		554	101,470	5,412			85	64	20,044	25,605	75,865	10,463,262.00
Minors, etc	4,187	771	10	7						788	4,975	20		749	7	2	1	779	4,196	755,120.00
Navy—																				
Invalids	3,665	34	1	2						37	3,702	248			5	3	710	966	2,736	363,255.00
Minors, etc	146	31								31	177	2		27				29	148	27,048.00
Act April 19, 1908:																				
Army widows	203,236	18,480	97	31	2				2	18,612	221,848	8,905	634		54	63	160	9,816	212,032	30,782,040.00
Navy widows	8,545	668	1	1						670	9,215	391	15		2	1	12	421	8,794	1,274,208.00

EXHIBIT 1.—*Pensioners added to and dropped from the roll during the year, and annual value of pension of each class on the roll June 30, 1910*—Cont'd.

Classes.	Pensioners on roll at beginning of year.	Pensioners added to the roll.			Pensioners added to classes by transfer from other classes.					Total pensioners added to classes during the year.	Grand total.	Actual loss to the roll during the year.					Loss to one class by allowance under another class to same person.	Total loss to the roll.	Pensioners on the roll at close of the year.	Annual value.
		Original.	Restoration.	Renewal.	Original.	Restoration.	Renewal.	Additional.	Reissue.			By death.	By remarriage.	Minors by legal limitation.	By failure to claim.	By other causes.				
War with Spain.																				
Army:																				
Invalids	21,264	1,128	20	53	2					1,203	22,467	282			23	98	1	404	22,063	$2,642,389.00
Widows, etc	4,845	201		3					1	205	5,050	145	52	28	4	1	3	233	4,817	757,692.00
Navy:																				
Invalids	703	45			1					46	749	20			2	7		29	720	105,757.10
Widows, etc	283	14								14	297	5	2	1				8	289	51,840.00
War of 1812.																				
Widows	395									395		56			1			57	338	50,952.00
War with Mexico.																				
Survivors	2,459	3		2						5	2,464	418			1	3		422	2,042	486,682.00
Widows	6,633	213			1					214	6,847	476	6		4	1	1	488	6,359	918,552.00
Indian wars.																				
Survivors	1,744	29								29	1,773	212					1	213	1,560	171,108.00
Widows	2,881	150								150	3,031	200	7		2			209	2,822	406,608.00
Total	946,194	27,988	516	715	10	16	938	26	27,586	57,795	1,003,989	51,851	942	956	236	345	28,576	82,906	921,083	158,332,391.82

Average annual value of each pension	$171.90
Regular establishment	173.26
General law, civil war	224.44
Act of June 27, 1890	139.93
War with Spain	127.52
Act of February 6, 1907	170.91
Survivors, civil war	187.22
Act of April 19, 1908	145.16

Exhibit 2.—*Number and amount of first payments in original, increase, reissue, restoration, and other cases made during the fiscal year ended June 30, 1910.*

Class.		Original.		Increase and reissue.		Supplemental.		Additional.		Restoration and renewal.		Total.	
		Number.	Amount.	Number.	Amount.	Number.	Amount.	Number.	Amount.	Number.	Amount.	Number.	Amount.
Regular establishment:													
Army	invalids	748	$73,434.28	543	$19,603.53					6	$1,431.47	1,297	$94,469.28
	widows, etc.	227	36,667.33	7	754.83					1	176.00	235	37,598.16
Navy	invalids	400	31,054.72	145	5,912.77	4	$1,159.23			18	415.99	567	38,542.71
	widows, etc.	121	14,305.66	5	410.33							126	14,715.99
Civil war, act February 6, 1907:													
Army		2,871	124,824.67	49,766	1,574,698.99	5	20.32			281	58,616.10	52,923	1,758,160.08
Navy		329	17,290.09	1,874	67,569.70					5	232.50	2,208	85,092.29
Civil war, general law:													
Army	invalids	41	13,018.07	8,232	375,265.47	23	9,202.55			793	41,066.88	9,089	438,552.97
	nurses	3	735.60	1	49.33							4	784.93
	widows, etc.	770	159,258.67	203	21,951.41	12	636.87			442	55,476.08	1,427	237,323.03
Navy	invalids			106	5,572.08	1	1,763.40			8	674.06	115	8,009.54
	widows, etc.	6	176.53	13	802.15					2	252.40	21	1,231.08
Civil war, act June 27, 1890:													
Army	invalids	406	98,788.14	627	18,833.02	114	52,787.00	40	$3,609.98	99	25,948.48	1,286	200,057.22
	minors, etc.	750	186,521.04	13	495.00	5	3,310.93			13	3,924.25	781	194,251.22
Navy	invalids	37	5,870.19	39	963.65					3	53.97	79	6,887.81
	minors, etc.	26	4,237.00	1	11.40							27	4,248.40
Civil war, act April 19, 1908:													
Army, widows		17,564	1,184,976.48	29	3,921.55					86	17,361.14	17,679	1,206,259.17
Navy, widows		673	56,707.10	1	42.00					2	172.20	676	56,921.30
War with Spain:													
Army	invalids	1,091	294,507.13	1,064	38,167.12					110	7,147.82	2,265	339,822.07
	widows, etc.	178	34,320.53	4	239.97					4	501.20	186	35,061.70
Navy	invalids	43	4,524.96	21	859.40					3	203.83	67	5,588.19
	widows, etc.	15	1,593.80	1	109.00							16	1,702.80
War of 1812	survivors												
	widows			2	118.80							2	118.80
War with Mexico	survivors	3	2,524.80	6	680.54	1	139.07					10	3,344.41
	widows	189	32,415.27									189	32,415.27
Indian wars	survivors	32	15,676.90	1	44.27							33	15,721.17
	widows	140	41,624.68									140	41,624.68
Total		26,663	2,435,053.64	62,704	2,137,076.31	165	69,019.97	40	3,699.98	1,876	213,654.37	91,448	4,858,504.27

EXHIBIT 3.—*Appropriations for pensions and disbursements on account thereof for the fiscal year ended June 30, 1910, and unexpended balances at close of year.*

Items of appropriation.	Appropriations.			Disbursements.			Balances.		
	Amount appropriated act March 4, 1909.	Repayments to the appropriation.	Total.	Amount disbursed by United States pension agents.	Amount disbursed by Treasury settlements.	Total amount disbursed.	Balance remaining in the hands of United States pension agents June 30, 1.	Balance remaining in the United States Treasury June 30, 1910.	Available balance June 30, 1910.
Army pensions	$154,657,000.00	$2,954.20	$154,659,954.20	$154,636,653.91	$1,944.90	$154,638,598.81	$21,079.13	$276.26	$21,355.39
Navy pensions	5,343,000.00	252.27	5,343,252.27	5,335,361.27	96.00	5,335,457.27	7,689.45	105.55	7,795.00
Total pensions	160,000,000.00	3,206.47	160,003,206.47	159,972,015.18	2,040.90	159,974,056.08	28,768.58	381.81	29,150.39
Fees of examining surgeons, pensions	400,000.00	3.00	400,003.00	186,870.45	....	186,870.45	113,132.55	100,000.00	213,132.55
Salaries and expenses of pension agents:									
Salaries, pension agents	72,000.00	....	72,000.00	71,300.00	22.22	71,322.22	....	677.78	677.78
Clerk hire, pension agencies	400,000.00	....	400,000.00	390,197.20	....	390,197.20	9,802.80	....	9,802.80
Rent for pension agency at New York, N. Y.	4,500.00	....	4,500.00	4,500.00	....	4,500.00		....	....
Examinations, pension agencies	1,500.00	....	1,500.00	....	221.78	221.78	....	1,278.22	1,278.22
Contingent expenses, pension agencies	30,000.00	.19	30,000.19	4,704.79	5,929.29	10,634.08	2,384.85	16,981.26	19,366.11
Total	508,000.00	.19	508,000.19	470,701.99	6,173.29	476,875.28	12,187.65	18,937.26	31,124.91
Grand total	160,908,000.00	3,209.66	160,911,209.66	160,629,587.62	8,214.19	160,637,801.81	154,088.78	119,319.07	273,407.85

In addition to the above, there were disbursed during the fiscal year ended June 30, 1910, the following sums chargeable to the appropriation for the fiscal year ended June 30, 1909:

Fees of examining surgeons, pensions, at Washington, D. C.	$76,349.05
Fees of examining surgeons, pensions, by Treasury settlements	574.15
Total	76,923.20

Of the amount ($5,335,457.27) disbursed for navy pensions, $362,299.27 was paid from the navy-pension fund under act March 4, 1909.

EXHIBIT 4.—*Amount disbursed at United States pension agencies during the fiscal year ended June 30, 1910, as shown by accounts current.*

Agency.	Pensions.			Fees of examining surgeons, pensions.	Salaries.	Clerk hire.	Rent.	Contingent expenses.	Grand total.
	Army.	Navy.	Total.						
Augusta	$2,927,653.23		$2,927,653.23		$4,000.00	$7,784.00		$48.66	$2,939,485.89
Boston	8,290,995.61	$1,138,577.39	9,429,573.00		4,000.00	22,727.29		191.50	9,456,491.79
Buffalo	6,970,003.72		6,970,003.72		4,000.00	19,595.00		449.53	6,994,048.25
Chicago	11,463,027.50	1,055,744.37	12,518,771.87		4,000.00	28,519.00		346.29	12,551,637.16
Columbus	16,228,624.83		16,228,624.83		4,000.00	35,114.17		328.26	16,268,067.26
Concord	2,771,998.71		2,771,998.71		4,000.00	7,390.00		28.00	2,783,416.71
Des Moines	8,933,999.82		8,933,999.82		4,000.00	22,853.29		35.10	8,960,888.21
Detroit	6,930,755.84		6,930,755.84		4,000.00	17,943.17		116.23	6,952,815.24
Indianapolis	10,790,095.58		10,790,095.58		4,000.00	21,785.84		199.15	10,816,080.57
Knoxville	10,105,939.03		10,105,939.03		4,000.00	24,164.50		305.20	10,134,408.73
Louisville	4,283,036.00		4,283,036.00		4,000.00	11,915.00		133.96	4,299,084.96
Milwaukee	8,310,174.29		8,310,174.29		4,000.00	19,249.20		69.41	8,333,492.90
New York	7,635,035.35	1,039,031.07	8,674,066.42		4,000.00	23,531.92	$4,500.00	290.16	8,706,388.50
Philadelphia	8,428,902.78	664,254.44	9,093,157.22		3,300.00	23,296.16		277.98	9,120,031.36
Pittsburg	7,237,162.71		7,237,162.71		4,000.00	19,968.50		403.83	7,261,535.04
San Francisco	6,950,119.91	338,700.00	7,288,819.91		4,000.00	19,488.50		330.54	7,312,638.95
Topeka	18,370,036.00		18,370,036.00		4,000.00	39,071.66		407.81	18,413,515.47
Washington	8,009,093.00	1,099,054.00	9,108,147.00	$186,870.45	4,000.00	25,800.00		743.18	9,325,560.63
Total	154,636,653.91	5,335,361.27	159,972,015.18	186,870.45	71,300.00	390,197.20	4,500.00	4,704.79	160,629,587.62

EXHIBIT 5.—*Number of pensioners, by classes, on the rolls of each agency, together with the total number on the rolls June 30, 1910 and 1909.*

Agency.	Regular establishment.				Civil war.											
					Act February 6, 1907.		General law.					Act June 27, 1890.			
	Army.		Navy.		Army.	Navy.	Army.			Navy.		Army.		Navy.	
	Invalids.	Widows, etc.	Invalids.	Widows, etc.			Invalids.	Nurses.	Widows, etc.	Invalids.	Widows, etc.	Invalids.	Minors, etc.	Invalids.	Minors, etc.
Augusta	84	36	....	....	6,154	....	3,252	3	1,975	....	....	1,066	59	....	....
Boston	317	149	310	194	22,841	3,027	3,262	27	4,575	281	332	2,127	151	400	25
Buffalo	303	105	....	....	15,383	....	5,615	15	4,634	....	....	3,077	94	....	....
Chicago	498	92	681	168	26,550	2,488	9,264	39	5,887	428	250	5,726	311	756	27
Columbus	608	133	....	....	31,194	....	16,896	33	9,381	....	....	8,615	314	....	....
Concord	83	23	....	....	4,912	....	3,198	3	2,129	....	....	893	42	....	....
Des Moines	321	49	....	....	22,227	....	7,643	31	3,875	....	....	4,554	172	....	....
Detroit	327	77	....	....	13,293	....	7,528	11	3,919	....	....	3,563	139	....	....
Indianapolis	622	83	....	....	15,350	....	16,125	30	7,424	....	....	4,227	265	....	....
Knoxville	1,055	301	....	....	23,737	....	4,578	24	2,930	....	....	6,510	639	....	....
Louisville	519	134	....	....	8,268	....	3,318	6	2,354	....	....	2,490	275	....	....
Milwaukee	364	84	....	....	20,426	....	6,771	27	3,731	....	....	3,737	177	....	....
New York	612	296	497	269	19,171	2,761	3,031	20	3,422	140	162	2,233	126	417	22
Philadelphia	361	154	308	179	21,424	1,646	3,976	19	3,592	113	123	3,512	197	232	20
Pittsburg	168	55	....	....	16,742	....	4,708	12	2,913	....	....	3,895	146	....	....
San Francisco	916	197	293	55	19,854	965	3,320	40	1,613	46	21	3,345	175	203	11
Topeka	1,011	161	....	....	44,659	....	13,231	45	6,084	....	....	11,705	648	....	....
Washington	2,149	519	773	528	16,949	2,412	4,685	57	3,159	172	140	4,590	267	728	43
Total	10,318	2,648	2,862	1,393	349,134	13,299	120,401	442	73,597	1,180	1,028	75,865	4,196	2,736	148

Agency.	Civil war—Cont'd.		War with Spain.				War of 1812.	War with Mexico.		Indian wars.		Number of pensioners June 30, 1910.	Number of pensioners June 30, 1909.
	Act April 19, 1908.												
	Army.	Navy.	Army.		Navy.								
	Widows.	Widows.	Invalids.	Widows, etc.	Invalids.	Widows, etc.	Widows.	Survivors.	Widows.	Survivors.	Widows.		
Augusta	2,922	....	257	44	....	....	8	7	28	....	2	15,897	16,455
Boston	15,196	2,142	662	388	95	38	8	14	86	6	15	56,668	58,400
Buffalo	9,620	....	782	207	....	....	28	19	51	1	7	39,941	42,873
Chicago	14,968	1,448	1,395	264	144	35	20	157	430	11	65	72,102	73,851
Columbus	20,264	....	2,350	345	....	....	27	83	230	6	11	90,490	93,397
Concord	3,139	....	333	57	....	....	6	2	24	....	1	14,845	15,358
Des Moines	10,981	....	973	151	....	....	4	82	214	11	26	51,314	52,618
Detroit	7,813	....	1,346	213	....	....	5	27	61	1	7	38,330	39,438
Indianapolis	10,843	....	1,967	173	....	....	13	94	286	1	15	57,518	58,830
Knoxville	13,518	....	2,265	646	....	....	99	548	2,115	548	1,763	61,276	62,349
Louisville	5,857	....	1,015	232	....	....	12	81	356	5	11	24,933	25,639
Milwaukee	10,071	....	1,210	222	....	....	6	35	103	4	21	46,989	48,150
New York	15,099	2,058	867	425	128	54	18	56	176	3	12	52,074	53,458
Philadelphia	16,273	1,349	787	261	75	31	6	32	141	1	10	54,822	56,310
Pittsburg	12,235	....	741	145	....	....	4	17	83	1	3	41,868	43,195
San Francisco	8,175	327	1,590	222	102	21	3	365	706	833	639	44,037	44,130
Topeka	24,750	....	1,915	298	....	....	15	306	869	107	171	105,975	108,879
Washington	10,308	1,470	1,608	524	176	110	56	117	400	21	43	52,004	52,864
Total	212,032	8,794	22,063	4,817	720	289	338	2,042	6,359	1,560	2,822	921,083	946,194

Exhibit 6.—*Number of pensioners in each State and Territory, each insular possession, and each foreign country on the roll June 30, 1910, and the amounts paid therein during the fiscal year 1910.*

State or country.	Number.	Amount.
UNITED STATES.		
Alabama	3,707	$617,186.76
Alaska	89	13,414.40
Arizona	897	145,805.88
Arkansas	10,691	1,803,715.28
California	28,762	4,808,471.51
Colorado	9,400	1,430,628.41
Connecticut	11,531	1,882,315.04
Delaware	2,629	459,518.41
District of Columbia	8,532	1,507,915.69
Florida	4,244	724,581.33
Georgia	3,410	560,331.05
Idaho	2,479	421,141.78
Illinois	63,788	11,074,860.89
Indiana	56,416	10,546,090.58
Iowa	32,596	5,676,676.15
Kansas	35,506	6,690,817.32
Kentucky	24,398	4,211,477.00
Louisiana	6,368	950,875.63
Maine	16,577	3,028,958.80
Maryland	12,400	2,171,842.44
Massachusetts	38,904	6,506,307.37
Michigan	38,444	6,974,115.59
Minnesota	15,199	2,650,358.70
Mississippi	4,682	756,230.45
Missouri	45,873	8,185,318.43
Montana	2,408	407,301.11
Nebraska	15,182	2,641,628.99
Nevada	453	73,009.56
New Hampshire	7,384	1,333,531.17
New Jersey	21,384	3,426,980.30
New Mexico	2,240	351,370.40
New York	78,227	13,610,891.92
North Carolina	4,005	667,520.29
North Dakota	2,241	405,283.51
Ohio	89,227	16,008,017.32
Oklahoma	13,097	1,797,189.04
Oregon	8,101	1,337,655.74
Pennsylvania	89,828	15,130,145.27
Rhode Island	5,208	864,994.55
South Carolina	1,974	291,751.80
South Dakota	4,863	790,175.76
Tennessee	18,478	3,158,330.12
Texas	9,177	1,431,850.72
Utah	1,106	190,795.11
Vermont	7,487	1,437,346.79
Virginia	8,652	1,519,477.56
Washington	11,213	1,863,659.62
West Virginia	11,930	2,095,288.37
Wisconsin	23,528	4,261,565.25
Wyoming	1,043	180,248.79
Total	915,968	159,074,963.95
INSULAR POSSESSIONS.		
Hawaii	77	13,064.76
Philippines	44	10,359.32
Porto Rico	32	5,370.00
Total	153	28,794.08
FOREIGN COUNTRIES.		
Algeria	1	144.00
Argentina	12	2,101.68
Australia	70	12,259.10
Austria-Hungary	31	5,429.24
FOREIGN COUNTRIES—continued.		
Azores	7	$1,176.00
Bahamas	4	612.27
Barbados	1	144.00
Belgium	17	2,820.67
Bermuda	8	1,224.40
Bolivia	1	195.40
Brazil	4	576.00
Canada	2,588	453,262.32
Cape de Verde Islands	1	96.00
Chile	11	1,926.54
China	18	3,153.84
Comoro Islands	1	150.00
Costa Rica	5	875.70
Cuba	53	9,282.42
Danish West Indies	4	700.52
Denmark	32	5,606.12
Dominican Republic	1	108.00
Dutch West Indies	3	396.00
England	361	63,225.54
Egypt	2	324.00
France	54	9,457.56
Germany	571	99,985.54
Greece	9	1,576.17
Guatemala	4	567.53
Haiti	1	144.00
Honduras	3	425.42
Hongkong	3	263.67
India	9	1,376.26
Ireland	452	79,158.76
Isle of Man	2	312.00
Isle of Pines	6	1,050.78
Italy	40	7,005.60
Jamaica	7	1,225.98
Japan	20	3,503.66
Korea	1	180.00
Liberia	11	1,934.43
Madeira	6	1,050.84
Malta	2	288.00
Mexico	152	26,621.28
Netherlands	10	1,751.37
Newfoundland	4	612.00
New Zealand	8	1,068.00
Nicaragua	4	659.52
Norway	55	9,632.15
Panama	14	2,365.68
Paraguay	1	240.00
Peru	10	1,751.30
Portugal	3	708.00
Russia	15	2,627.10
Samoa	1	96.00
Scotland	90	15,762.60
Seychelles Islands	1	(a)
South Africa	7	1,080.00
Spain	1	180.00
St. Helena	1	144.00
St. Martin	1	180.00
Sweden	56	9,807.28
Switzerland	62	10,858.68
Tasmania	1	(a)
Turkey	15	2,713.13
Uruguay	3	600.00
Wales	20	3,504.60
Total	4,972	868,257.15

[a] No payment.

SUMMARY.

	Pensioners.	Payments.
Pensioners residing in States and Territories and payments to them	915,958	$159,074,963.95
Pensioners residing in insular possessions and payments to them	153	28,794.08
Pensioners residing in foreign countries and payments to them	4,972	868,257.15
Total	921,083	159,972,015.18
Payments by Treasury Department (Treasury settlements)		2,040.90
Total payments on account of army and navy pensions for the fiscal year		159,974,056.08

Exhibit 7.—*Statement showing, by classes, the different monthly rates paid to pensioners and the number at each rate on roll June 30, 1910.*

Rate.	Regular establishment.		Civil war.							War with Spain.		War of 1812.	War with Mexico.		Indian wars.	
			Act of Feb. 6, 1907.	General law.			Act June 27, 1890.		Act of Apr. 19, 1908.							
	Invalids.	Widows, etc.		Invalids.	Nurses.	Widows, etc.	Invalids.	Minors, etc.	Widows.	Invalids.	Widows, etc.	Widows.	Survivors.	Widows.	Survivors.	Widows.
$1.50	1															
2.00	3															
3.00	4															
4.00	3															
5.00	13															
6.00	3,677			844			2,461			10,146						
6.25										6						
7.00				1												
7.50	11			10						41						
8.00	1,911			750		13	4,551	48		4,043					1,316	
8.50	1			12						41						
9.00				5												
9.50	1			1												
9.75	1															
10.00	1,314			770			3,513			2,495						
10.50	3															
11.00	3			2												
11.25				23						22						
11.33⅓				1												
11.50	4			1												
11.75				1												
12.00	1,516	2,950	197,145	12,952	337	65,116	68,069	4,296	220,826	2,122	4,702	318	40	6,068		2,721
12.25				8												
12.50	10			11						9						
12.75	1			60						45						
13.00	4			60												
13.25				2												
13.37½				1												
13.50	2		1	3						1						
13.68	1															
13.75	1			1												
14.00	568		2	10,236		1				690						
14.25				1												
14.50	1															
14.75				2												
15.00	36	50	101,778	772		1,277	1			87	34		5			
15.25				2												
15.50	1			2						1						
15.54	1															
15.68	1															
15.75				1						1						
16.00	134			2,912						35						
16.25				1												
16.50	2			8												
16.68	1															
16.75				3												
17.00	1,422	112		28,007		1,944				1,311	60					
17.25				1												
17.44⅓	1															
17.50	10			6												
17.75				1												
17.86	1															
18.00	17		2	234						1						
18.18	2															
18.25	1															
18.50	2			2												
18.75				20						7						
19.00	2			3												
19.18	2															
19.26	1			2												
19.50	1															
19.68	1															
19.75							1									
19.84⅓	1															
20.00	67	182	63,461	2,302		1,869				100	71		1,731			
20.86	1															

Exhibit 7.—*Statement showing, by classes, the different monthly rates paid to pensioners and the number at each rate on roll June 30, 1910*—Continued.

Rate.	Regular establishment.		Civil war.							War with Spain.		War of 1812.	War with Mexico.		Indian wars.	
			Act of Feb. 6, 1907.	General law.			Act June 27, 1890.		Act of Apr. 19, 1908.							
	Invalids.	Widows, etc.		Invalids.	Nurses.	Widows, etc.	Invalids.	Minors, etc.	Widows.	Invalids.	Widows, etc.	Widows.	Survivors.	Widows.	Survivors.	Widows.
$20.50	7															
20.68	4															
21.00	1		1	1												
21.18										1						
21.25	11			2						1						
21.50	1		1	2												
21.68	1															
22.00	55			1,579						41						
22.50	4		2	26			2			3						
22.68	2															
22.94⅓	2															
23.00	2		5													
23.25				2												
23.50	2															
23.86	1															
24.00	837			24. 237			1			487						
24.18	1															
24.36	1															
24.50			1	2												
24.59⅓	1															
25.00	74	131	4	1,414		433				30	36					
25.25				1												
25.50	1		1													
25.69⅓	1															
25.75	1															
26.00	3		1							2						
26.36	3															
26.68	1															
26.69⅓	1															
26.75	1			1												
27.00	30		2	740			1			15						
27.18	2															
27.36	1															
27.50	5			2						1						
28.00	1		1													
28.25	1															
28.50	1															
29.00	2									1						
29.18	2									1						
29.36	2															
29.50			1													
29.68	1															
30.00	654	219	1	12,109		363				405	25					
30.50	1		1													
30.68	1															
31.00	2		1													
31.18	1															
31.25	1			8												
32.00	1		1													
32.18										1						
32.36	1															
32.50	2		2													
32.68	1															
33.00	1		1													
33.36	1															
33.50	1															
33.86	1															
34.00	1		2	1												
34.18	2															
34.25	1															
34.50	3															
34.86	1															
35.50	2		1													
35.68	3															
36.00	4		2	36						4						
36.09⅓	1															

Exhibit 7.—*Statement showing, by classes, the different monthly rates paid to pensioners and the number at each rate on roll June 30, 1910*—Continued.

Rate.	Regular establishment.		Civil war.							War with Spain.		War of 1812.	War with Mexico.		Indian wars.	
			Act of Feb. 6, 1907.	General law.			Act June 27, 1890.		Act of Apr. 19, 1908.							
	Invalids.	Widows, etc.		Invalids.	Nurses.	Widows, etc.	Invalids.	Minors, etc.	Widows.	Invalids.	Widows, etc.	Widows.	Survivors.	Widows.	Survivors.	Widows.
$36.18	2									1						
36.50	1															
36.64½	1															
36.86	1															
37.00	2		2													
37.18										1						
37.19½	1															
37.36	1															
37.50	4		2													
37.68	2															
37.86	1															
38.00	2															
38.36	1															
39.00			1													
39.99½	1															
40.00	142			2,498						92						
40.50	1															
40.54½	1															
40.68	1															
40.74½	1															
41.00	2															
41.64½	1															
41.68	1									1						
42.00	2		1													
42.36	1															
42.50	1		1													
43.50	1		1													
44.00	1															
44.50	1															
45.00			1	2						1						
45.50	1															
46.00	77		1	1,341						57						
46.18	1															
47.00	3						1									
47.25	1															
48.00				1												
48.50	1															
48.78	1															
48.86										1						
49.00			1													
49.50	1															
50.00	73		1	1,107		1				65						
50.36										1						
52.00	3															
52.68	1															
54.00	1															
55.00	33			1,504						30						
55.36	1															
57.50	1															
58.00	2															
59.00	1			1												
60.00	1			3												
61.18	1															
62.36	1															
62.86	1															
68.00	2															
71.64½	1															
72.00	66			660						50						
80.00	1															
82.50	1															
88.00	1															
100.00	82			499						13						
100.18	1															
108.00	1									1						
Total.	13,005	3,644	362,433	107,816	337	71,017	78,601	4,344	220,826	22,511	4,928	318	1,776	6,068	1,316	2,721

Exhibit 8.—*Statement showing, by classes, the different monthly rates paid to pensioners under special acts of Congress and the number at each rate on roll June 30, 1910.*

Rate.	Regular establishment.		General law.			War with Spain.		War of 1812.	War with Mexico.		Indian wars.	
	Invalids.	Widows, etc.	Invalids.	Nurses	Widows etc.	Invalids.	Widows. etc.	Widows.	Survivors.	Widows.	Survivors.	Widows.
$6.00	4		7			8	1					
8.00	11		30		16	26	1		2	1	19	
10.00	7		9		3	15						
12.00	52	76	382	90	1,927	93	85	2	20	263	5	99
12.50						1						
14.00	3		23		4	4						
15.00		3	21		90	5	1			1	1	
16.00	5	1	30		219	5		2	1	13	217	
17.00	8	5	102		135	12	3					
17.50			1									
18.00	1	3	11		47	2	1	1		1		
20.00	11	24	570	6	605	16	12	1	218	4	2	1
22.00		1	7			1						
24.00	22	1	6,445	2	136	24	1	14	1			1
25.00	1	33	32	7	125	1	25		1	1		
27.00			1									
28.00	1											
30.00	22	71	4,924		184	40	19		22	6		
32.00					1							
33.00			1									
35.00		28	1		11		5					
36.00	2		397		2							
40.00	5	63	419		24	2	10		1	1		
42.00					1							
45.00	1	1	30		1							
45.50			1									
46.00	3		17			3						
50.00	12	79	219		62	11	13					
55.00			20			1						
60.00	1		12									
65.00			3									
67.00			1									
72.00	2		27			1						
75.00		2	2		5		1					
100.00	1	4	20		7	1						
125.00		1										
166.66⅔					2							
208.33⅓		1										
416.66⅔					1							
Total	175	397	13,765	105	3,608	272	178	20	266	291	244	101

EXHIBIT 9.—*Certificates issued during the fiscal year ended June 30, 1910.*

Classes.	Original.	Increase.	Additional.	Reissue.	Restoration.	Renewal.	Supplemental.	Total.
General law:								
Army—								
Invalids	54	6,466	....	2,903	16	914	36	10,389
Nurses	3	....	....	1	....	....	....	4
Widows, etc	940	64	....	192	24	505	9	1,734
Navy—								
Invalids	1	32	....	85	2	10	2	132
Widows, etc	11	3	....	14	....	2	....	30
War of 1812—widows	....	4	....	....	....	....	....	4
Old wars—widows, etc	1	....	....	....	....	....	....	1
War with Spain—								
Army—								
Invalids	1,128	1,122	....	84	21	51	....	2,406
Widows, etc	199	1	....	2	....	3	1	206
Navy—								
Invalids	50	17	....	2	....	....	....	69
Widows, etc	14	1	....	....	....	....	....	15
Regular establishment—								
Army—								
Invalids	827	559	....	30	3	5	....	1,424
Widows, etc	237	12	....	3	....	1	1	254
Navy—								
Invalids	484	127	....	32	11	25	1	680
Widows, etc	123	4	....	2	....	....	....	129
Act of June 27, 1890:								
Army—								
Invalids	409	583	33	46	114	11	88	1,284
Widows, etc	1,721	2	....	41	33	11	159	1,967
Navy—								
Invalids	34	41	....	4	3	2	5	89
Widows, etc	82	....	....	2	....	....	7	91
Act of February 6, 1907:								
Army—civil war	2,868	28,077	....	24,086	231	126	9	55,397
Navy—civil war	339	1,110	....	774	....	5	....	2,228
Mexican war	1	2	....	6	....	....	....	9
Act of April 19, 1908:								
Army widows	17,535	3	....	20	90	20	....	17,668
Navy widows	620	....	....	1	....	1	....	622
War with Mexico, act 1887, etc.:								
Survivors	1	9	....	3	....	2	1	16
Widows	215	....	....	....	....	....	....	215
Indian wars:								
Survivors	28	49	....	....	....	....	....	77
Widows	152	....	....	....	....	....	....	152
Total	28,027	38,288	33	28,333	548	1,694	319	97,242

Certificates issued each month during fiscal year.

July, 1909	7,436	February, 1910	7,608
August, 1909	6,851	March, 1910	10,076
September, 1909	7,208	April, 1910	11,032
October, 1909	8,240	May, 1910	8,384
November, 1909	7,302	June, 1910	9,123
December, 1909	6,566	Total	97,242
January, 1910	7,416		

EXHIBIT 10.—*Classification of claims pending June 30, 1910.*

Civil war:				
General law—				
Original invalid	301			
Reissue invalid	517			
Increase invalid	9,651			
		10,469		
Original widows	1,380			
Reissue widows	331			
Increase widows	14			
		1,725		
Original minors	297			
Reissue minors	21			
Increase minors	70			
		388		
Original dependents		50		
Army nurses		13		
			12,645	
Act of June 27, 1890:				
Original invalid	500			
Additional invalid	141			
Increase invalid	1,268			
		1,909		
Original widows	2,479			
Supplemental widows	35			
Original minors	939			
		3,453		
			5,362	
Act of March 3, 1901:				
Remarried widows			807	
Act of February 6, 1907:				
Original		1,822		
Reissue		1,628		
Increase		4,837		
			8,287	
Act of April 19, 1908:				
Original widows			7,717	
				34,818
Regular establishment:				
Original invalid		2,348		
Increase invalid		317		
			2,665	
Original widows		184		
Original minors		7		
Original dependents		93		
			284	
				2,949
War with Spain:				
Original invalid		7,529		
Increase invalid		857		
			8,386	
Original widows		501		
Original minors		34		
Original dependents		214		
			749	
				9,135
Mexican war:				
Survivors (act Jan. 29, 1887)		6		
Survivors (act Feb. 6, 1907)		4		
			10	
Widows (act Jan. 29, 1887)			184	
				194
Indian wars (acts of July 27, 1892; June 27, 1902; and May 30, 1908):				
Survivors			38	
Widows			148	
				186

Old wars:			
Original invalid	1		
Increase invalid	10		
		11	
Original widows		2	
			13
Total			47,295

Agencies, dates of payment, and districts.

AUGUSTA, ME.

Quarterly payments March 4, June 4, September 4, and December 4.
District.—The State of Maine. Navy pensioners in this district are paid at Boston, Mass.

BOSTON, MASS.

Quarterly payments March 4, June 4, September 4, and December 4.
District.—The States of Connecticut, Massachusetts, and Rhode Island, and all navy pensioners residing in this and the Augusta and Concord districts.

BUFFALO, N. Y.

Quarterly payments January 4, April 4, July 4, and October 4.
District.—The counties in the State of New York not in the New York City district. All navy pensioners in the State are paid at New York City.

CHICAGO, ILL.

Quarterly payments January 4, April 4, July 4, and October 4.
District.—The State of Illinois, and all navy pensioners residing in this and the Columbus, Des Moines, Detroit, Indianapolis, Louisville, Milwaukee, and Topeka districts.

COLUMBUS, OHIO.

Quarterly payments March 4, June 4, September 4, and December 4.
District.—The State of Ohio. Navy pensioners in this district are paid at Chicago.

CONCORD, N. H.

Quarterly payments January 4, April 4, July 4, and October 4.
District.—The States of New Hampshire and Vermont. Navy pensioners in this district are paid at Boston.

DES MOINES, IOWA.

Quarterly payments January 4, April 4, July 4, and October 4.
District.—The States of Iowa and Nebraska. Navy pensioners in this district are paid at Chicago.

DETROIT, MICH.

Quarterly payments March 4, June 4, September 4, and December 4.
District.—The State of Michigan. Navy pensioners in this district are paid at Chicago.

INDIANAPOLIS, IND.

Quarterly payments February 4, May 4, August 4, and November 4.
District.—The State of Indiana. Navy pensioners in this district are paid at Chicago.

KNOXVILLE, TENN.

Quarterly payments February 4, May 4, August 4, and November 4.
District.—The States of Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, and Texas. Navy pensioners in this district are paid at Washington, D. C.

LOUISVILLE, KY.

Quarterly payments February 4, May 4, August 4, and November 4.

District.—The State of Kentucky. Navy pensioners in this district are paid at Chicago.

MILWAUKEE, WIS.

Quarterly payments January 4, April 4, July 4, and October 4.

District.—The States of Minnesota, North Dakota, South Dakota, and Wisconsin. Navy pensioners in this district are paid at Chicago.

NEW YORK CITY, N. Y.

Quarterly payments February 4, May 4, August 4, and November 4.

District.—The following counties in the State of New York: Albany, Clinton, Columbia, Delaware, Dutchess, Essex, Greene, Kings, Nassau, New York, Orange, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Suffolk, Sullivan, Ulster, Warren, Washington, and Westchester. The following counties in the State of New Jersey: Bergen, Essex, Hudson, Hunterdon, Middlesex, Monmouth, Morris, Passaic, Somerset, Sussex, Union, and Warren; all navy pensioners in the State of New York, and all pensioners residing in the island of Porto Rico.

PHILADELPHIA, PA.

Quarterly payments February 4, May 4, August 4, and November 4.

District.—The following counties in the State of Pennsylvania: Berks, Bradford, Bucks, Carbon, Chester, Columbia, Dauphin, Delaware, Lackawanna, Lancaster, Lebanon, Lehigh, Luzerne, Monroe, Montgomery, Montour, Northampton, Northumberland, Philadelphia, Pike, Schuylkill, Sullivan, Susquehanna, Wayne, Wyoming, and York. The following counties in the State of New Jersey: Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Mercer, Ocean, and Salem, and all navy pensioners in the State of Pennsylvania.

PITTSBURG, PA.

Quarterly payments January 4, April 4, July 4, and October 4.

District.—The counties in the State of Pennsylvania not in the Philadelphia district. All navy pensioners in the State are paid at Philadelphia.

SAN FRANCISCO, CAL.

Quarterly payments March 4, June 4, September 4, and December 4.

District.—The States of California, Idaho, Montana, Nevada, Oregon, Utah, Washington, and Wyoming; the Territories of Alaska, Arizona, and Hawaii; the Philippines, Guam, and the Samoan Islands belonging to the United States; including all navy pensioners.

TOPEKA, KANS.

Quarterly payments February 4, May 4, August 4, and November 4.

District.—The States of Colorado, Kansas, Missouri and Oklahoma, and the Territory of New Mexico. Navy pensioners in this district are paid at Chicago.

WASHINGTON, D. C.

Quarterly payments March 4, June 4, September 4, and December 4.

District.—The States of Delaware, Maryland, Virginia, and West Virginia; the District of Columbia; all pensioners residing in foreign countries, and all navy pensioners residing in this and the Knoxville districts.

REPORT OF THE COMMISSIONER OF PATENTS.

REPORT OF THE COMMISSIONER OF PATENTS.

Department of the Interior,
United States Patent Office,
Washington, D. C., October 31, 1910.

Sir: I have the honor to submit herewith the following report of the business of the United States Patent Office for the fiscal year ended June 30, 1910:

Applications and caveats received during fiscal year ended June 30, 1910.

Applications for patents for inventions	63,365
Applications for patents for designs	1,132
Applications for reissues of patents	176
Applications for registration of trade-marks	7,359
Applications for registration of labels	384
Applications for registration of prints	117
Total applications	72,533
Caveats	1,862
Disclaimers	10
Appeals on the merits	1,609
Total applications, caveats, disclaimers, and appeals	76,014

Applications awaiting action.

Applications awaiting action on the part of the office July 1, 1910	14,575

Applications for patents, including reissues, designs, trade-marks, labels, and prints.

June 30, 1901	48,075	June 30, 1906	68,881
1902	51,258	1907	66,795
1903	54,256	1908	68,441
1904	55,468	1909	73,026
1905	66,228	1910	72,533

Applications awaiting action on the part of the office.

June 30, 1901	7,683	June 30, 1906	21,958
1902	11,042	1907	13,634
1903	9,842	1908	20,043
1904	13,069	1909	17,153
1905	16,077	1910	14,575

Patents withheld and patents expired.

Letters patent withheld for nonpayment of final fees	6,954
Letters patent expired	22,469
Applications allowed, awaiting payment of final fees	13,412

Patents granted and trade-marks, labels, and prints registered.

Class.	1906	1907	1908	1909	1910
Letters patent	31,070	33,644	34,003	34,332	36,287
Design patents	633	529	748	721	629
Reissue patents	134	165	151	162	142
Trade-marks	10,408	8,798	6,185	4,547	4,842
Labels	741	660	636	779	176
Prints	354	325	279	281	59
Total	43,340	44,121	41,952	40,772	41,635

Expenditures.

	Expended.	Estimated liabilities.	Total.
Salaries	$1,233,821.61		$1,233,821.61
Scientific library	780.90		780.90
Postage on foreign matter	1,020.00		1,020.00
Stationery	11,349.49		11,349.49
Ice	548.28		548.28
Telephones	764.89		764.89
Washing towels	152.17		152.17
Furniture, carpets, linoleum, matting, and sundries	13,224.76		13,224.76
Law library	362.25		362.25
Public use	24.90		24.90
Photolithographing, paid contractor	110,010.22		110,010.22
Photographic printing, paid contractor	8,309.10		8,309.10
Printing old specifications, paid Public Printer	21,680.68		21,680.68
Printing and binding:			
Official Gazette and indexes	173,935.25		173,935.25
Specifications	351,579.67		351,579.67
Miscellaneous	25,235.59		25,235.59
International Convention for Protection of Industrial Property		$750.00	750.00
Total	1,952,799.76	750.00	1,953,549.76

Receipts and expenditures

Receipts from all sources	$2,022,043.26
Expenditures (including total in all appropriations)	1,953,549.76
Surplus	68,493.50

Comparative statement of receipts and expenditures, 1901 to 1910.

June 30—	Receipts.	Expenditures.
1901	$1,408,877.67	$1,288,970.18
1902	1,491,538.85	1,329,924.68
1903	1,591,251.04	1,423,094.40
1904	1,663,879.99	1,469,124.40
1905	1,737,334.44	1,472,467.51
1906	1,811,297.84	1,538,149.40
1907	1,859,592.89	1,584,489.70
1908	1,874,180.75	1,608,292.01
1909	1,975,919.97	1,887,443.35
1910	2,022,043.26	1,953,549.76

As specified in the foregoing statement, there were received in the last fiscal year 63,365 applications for mechanical patents, 1,132 applications for designs, 176 applications for reissues, 1,862 caveats, 7,359 applications for trade-marks, 384 applications for labels, and 117 applications for prints. There were 37,058 patents granted, including reissues and designs, and 4,342 trade-marks, 176 labels, and 59 prints were registered.

The number of patents that expired was 22,469. The number of allowed applications which were by operation of law forfeited for nonpayment of the final fees was 6,954. The total receipts of the office were $2,022,043.26, the total expenditures were $1,953,549.76, and the net surplus of receipts over expenditures, being the amount turned into the Treasury, was $68,493.50.

CONDITION OF WORK.

The work of the corps of examiners has shown material improvement during the fiscal year. The searches have been more thorough and greater care has been exercised in every particular. Never before in the history of the office has this branch of the work been in such good condition, and the result has been reached and made possible by the increase in salaries and force which Congress has granted during the past three years.

Previous to that time the salaries of the examiners had remained the same since 1848, or for a period of more than sixty years. That condition resulted annually in a loss by resignation each year of a large percentage of these trained and experienced employees. At the present rate of remuneration the service has proved much more attractive to these technically educated men. The increased salaries have appealed to graduates of the various universities and especially such men as have specialized in the scientific and technical branches, so that to-day the examining corps has been recruited up to its normal condition from this very desirable class of men.

The fact that the standard of the entrance examination was raised to include more advanced questions in the subjects of examinations makes it safe to assert that the examining corps of the Patent Office is to-day the equal, if not in fact the superior, of any like body in the world.

While the trade-mark branch of the office is not as satisfactory as that of the examining divisions, yet the work has been kept up with great effort on the part of the present administration. It is quite distinct from the regular technical work and has no relation to the rest of the Patent Office work. With the addition of the examiners of trade-marks and designs, asked for through the various appropriation bills, it will be possible to put this branch of the work on the same high footing now attained by the regular examining corps. In this connection I desire to state that in view of the great importance trade-marks are to commerce generally, this part of the work should be more carefully done and by trained men. The subject of trade-marks has received a great deal of attention in this as well as foreign countries in the last year or two, and it will soon be the subject of discussion at the forthcoming congress for the protection of industrial property, which convenes in Washington in May, 1911. After this conference has met and considered the questions of trade-marks from an international standpoint, it will be quite necessary, in my opinion, to pass a new trade-mark law, which should be quite liberal and unmistakable as to provisions. Other important changes in the patent laws are under consideration which will be submitted to you in due season for transmission to the next Congress.

CLASSIFICATION OF PATENTS.

The great volume of American patents already issued, numbering nearly 1,000,000, and also between 2,000,000 and 3,000,000 of foreign patents, is being classified and adjusted by the additional force of 20 examiners, who, with an examiner of classification, were provided by the Congress. In the interest of economy this force should be doubled owing to the necessity for expediting this important work. No classification in this office has been made since its foundation, or since the first patent was issued in 1790. With this work completed, the work of the examination of the applications of inventors would be much simplified.

ELIMINATION OF APPEALS.

I have at various times referred to the proposed elimination of one appeal in the Patent Office. There is urgent necessity for relief in this particular. Various bills have been introduced from time to time for this purpose. This is entirely in the interest of the inventor, who is now frequently delayed from one to two years by taking an appeal to the board of examiners in chief, which, in my opinion, is entirely unnecessary. If the three members of the present board, together with the Commissioner, the First Assistant Commissioner, and the Assistant Commissioner, were formed into one tribunal, and appeals should lie direct to this proposed new appellate court, a great saving of time and money of inventors would result. A bill making this change was passed by the Senate in the last Congress and a favorable report was made by the Committee on Patents in the House of the present Congress. The recommendation received your approval, reference being made to the same in your report to the President. It also had the approval of the President, who, as you know, is very much interested in decreasing the expenses of litigation and simplifying the proceedings of the courts as far as possible, a policy he has frequently announced in his public speeches and in his messages to Congress.

TREATIES WITH FOREIGN NATIONS RELATING TO INDUSTRIAL PROPERTY.

Several treaties have been entered into with foreign countries, and the laws of several countries have been changed in regard to the so-called working clause.

Previously, if an invention of an American citizen were patented in this country and also abroad, and this invention were not worked abroad, the products could not be sold in these countries if they were manufactured solely in the United States. The United States law does not embrace any such provision and never has. When that fact was brought to the attention of many foreign nations it was taken under serious consideration, and the outcome has been that now in many of these countries it is not required of an American manufacturer that he duplicate his plant in every country in which he desires to market his output.

A notable case is the treaty with Germany, which, on behalf of the Department of State, I had the honor to negotiate. This treaty, in its broad workings, not only had the effect of protecting the American inventor and manufacturer, but the German as well. The imperial court, sitting at Leipzig, has construed that treaty, and its provisions were upheld in some of the patents which had previously been declared forfeited, but through appeal to this court this restoration was ordered. Treaties with other countries, of a like nature, are now pending.

THE FOURTH INTERNATIONAL CONFERENCE OF AMERICAN STATES.

I respectfully announce the preparation by me of three conventions relating to patents, trade-marks, and copyrights, for consideration by the Fourth International Conference of American States at its conference during the summer of 1910. I was commissioned by the President as "expert attaché" to the American delegation to that conference. It is to be hoped that these three conventions will be adopted and ratified by the respective Governments represented at that conference, as they will result in a great benefit to all of the nations belonging to the Pan American union.

One of the provisions of the trade-mark convention is that it protects the Red Cross and the Geneva Cross from improper use in all these countries.

COURT OF PATENT APPEALS.

It is my opinion that legislation to realize the efforts of the American Bar Association for the establishment of a Court of Patent Appeals should be speedily enacted. A patent is granted by the Government which is effective throughout the United States and Territories. When this patent, however, is involved in a suit which is brought in any judicial district, the final decision, on appeal, is rendered by the circuit court of appeals of that jurisdiction. A decision involving the construction of a patent by the circuit court of appeals of one jurisdiction is effective only for that jurisdiction and has no legal effect in any other of the several circuits, except through comity. There have been in the past decisions rendered by several circuit courts of appeals which are directly opposed to each other. In view of the fact that a patent when issued is effective in all the States and Territories it is very clear that there should be one court of patent appeals whose decisions will control the status of that patent throughout the entire country. The importance of this is evident when it is considered that there are nine circuit courts of appeals and one court of appeals of the District of Columbia, each of which may and often does entertain in some particular a different view from the others with regard to the same patent.

INTERNATIONAL CONGRESS OF THE UNION FOR THE PROTECTION OF INDUSTRIAL PROPERTY.

The nations of the world, those who are adherents to the treaty of Paris of 1883, as well as all others, have been invited by the United States to hold the next congress of the union in the city of Washington, beginning May 15, 1911.

An appropriation of $10,000 was made by the Sixtieth Congress to defray the expenses of this gathering, which was originally expected to meet in May, 1910. By communication with the international bureau at Berne, Switzerland, it was learned that there would not be sufficient time for the various nations participating—some 35 in number—to prepare material to be considered by the conference, and upon the recommendation of the Commissioner of Patents the date was changed to May, 1911. Congress, under request of the State Department, continued the appropriation. Since that appropriation was made, however, this Government has invited the 20 Pan American States to send representatives to this congress, and a great many have accepted, and the probability is that all of them will signify before the date of meeting their intention to send delegates. This congress will be composed of members representing the various foreign nations, whose credentials will empower them to sign any measure that shall be passed by said congress, subject, however, to the subsequent approval of their respective Governments. The meeting of this congress will probably be the most important in the history of the union. Able and experienced delegates, mostly officials of the various nations, will be appointed, who will discuss and act upon measures to bring about international concessions and agreements in patent and trademark laws, thereby harmonizing the laws of various countries, which laws are at the present time widely at variance, so much so, in fact, that it is almost impossible for inventors and manufacturers to do business with any degree of satisfaction in the various countries.

By reason of the invitation extended to the Pan American countries, which was extended subsequent to the appropriation of $10,000 for the expenses of the conference and entertainment of its members, Congress has been asked to appropriate an additional sum of $15,000, as the delegates will be more than doubled in number by reason of said later invitation. The first sum appropriated is not adequate to pay the expenses of this congress.

The President of the United States has, through the Secretary of State, appointed as delegates to represent the United States at this congress, the Commissioner of Patents, Hon. Edward B. Moore, chairman of the delegation; Hon. Charles H. Duell, former Commissioner of Patents and ex-justice of the court of appeals of the District of Columbia; Frederick P. Fish, Esq., of Boston; Melville Church, Esq., of Washington, D. C., and Robert H. Parkinson, Esq., of Chicago, Ill., all of whom are leaders of the patent bar and well-known authorities in patent law and practice.

NEW BUILDING.

Permit me to again refer to the urgent need of a new and more commodious building to be occupied by the Patent Office. The utter inadequacy of the present quarters is apparent. The business of the office has increased so rapidly as to entirely outstrip the accommodations provided, which are practically the same as those of a decade ago. Your earnest efforts to give me more room for the Patent Office force by the restriction of the space occupied by your immediate office is highly appreciated, but at the same time it is a fact that if the Patent Office occupied all of the present building it would still be cramped and provided with insufficient facilities not only for the working force, but for the storage of the vast amount of valuable records, which, being constantly in use, must be kept accessible at all times. Storage space is at a premium, copies of patents having long since overrun into the corridors where they are constantly exposed to the ravages of dust and of possibility of destruction by fire.

Since the total of receipts covered into the Treasury by the Patent Office exceeds all expenses by about $7,000,000, this sum could well be used for the construction of a new, modern, and commodious building for a Patent Office, the inventors of the country, by payment of fees, having contributed all of this vast sum. The Patent Office has always been self-supporting. It is clear that the lack of space has the effect of retarding the work and places the Patent Office in the light of not giving the inventors of the country the service to which they are entitled through the payment of their money. The best facilities for expediting the work can not be furnished where records are necessarily promiscuously deposited and where clerks and examiners have not the requisite amount of light and air which the laws of hygiene prescribe and which are desirable in the interests of humanity. I can not too strongly urge the importance of beginning the fight for the building of a greater Patent Office. The location has been suggested by the late Senator Daniel in his bill introduced in 1909 (S. 1629), which has received the approval of yourself. Above all, the inventors and manufacturers of the country are entitled to this recommendation.

Respectfully submitted.

EDWARD B. MOORE,
Commissioner of Patents.

The SECRETARY OF THE INTERIOR.

STATEMENT OF THE COMMISSIONER OF EDUCATION.

STATEMENT OF THE COMMISSIONER OF EDUCATION.

Department of the Interior,
Bureau of Education,
Washington, September 15, 1910.

Sir: I have the honor to submit the following statement of the operations of this office for the fiscal year ended June 30, 1910:

NEW UNDERTAKINGS.

With the removal of the bureau in July, 1909, to its present quarters in the old Post-Office Department building, which was mentioned in my annual statement of last year, the several divisions of this office and the collections in its library have been more conveniently distributed for working purposes than had previously been possible.

In its new housing the bureau is in a better position than it had previously been for entering upon new activities. The most important of these undertakings during the past year has been the employment of specialists with especial reference to field service.

The position of collector and compiler of statistics, which had been vacant for some time, was filled by the transfer thereto of the former Chief of the Alaska Division, who has been assigned to duty as specialist in school administration. The specialist in land-grant college statistics, who entered on duty in August, 1909, had made a good beginning in field work in the interest of agricultural and mechanical colleges when he was called away from the government service by a considerably higher salary offered elsewhere. This place has now been filled by a new appointee, who will devote himself especially to work in the field.

The demand for such work as this, which should bring this office into more direct touch with the needs which it is to serve, has long been recognized. It is believed that the steps which have been taken to meet this demand and the further steps in the same direction which have been planned will add greatly to the usefulness of the office.

DIVISION OF SCHOOL ADMINISTRATION.

In order that the new work in the interest of state and city school systems may be more fully developed, a new division has been erected in the bureau, known as the Division of School Administration, with the specialist in school administration as its chief. In addition to matters relating to school legislation and the administrative activities of state and city education offices, this new division will have charge of all statistical work relating to state and city school systems. The various movements for the improvement of school statistics which have been in progress for some years past have recently been focused in the work of a special committee of the department of superintendence of the National Education Association and in that of the recently organized National Association of School Accounting Officers. The Division of School Administration is working in close cooperation with both of these organizations, and has received, moreover, valuable assistance from the Bureau of the Census. There is reason to hope that this combined effort, which has assumed large proportions during the past year, will lead to a better organization of school accounting and school statistics all over the country, and thereby contribute to the making of better systems of education. This division is also actively cooperating with the chief education officers of the several States, particularly those in the north-central and western groups, through conferences called by those officers, in their efforts to establish uniform regulations regarding the recognition of teachers' certificates among the various state school systems.

HIGHER EDUCATION.

The Congress at its recent session provided for the employment in this office of a specialist in higher education at an annual salary of $3,000. Such a specialist has become an imperative need of the office because of the growing demand for information relating to standards of collegiate and professional education, the statistics and accounting systems of colleges and universities, cooperation in graduate studies, the opportunities afforded in this country for students from foreign countries, and many related questions. The new specialist will, moreover, visit colleges and universities in different parts of the country, conferring with their officers of administration and instruction, and will accordingly be a third member of the field force now in process of organization.

EDITORIAL DIVISION AND DIVISION OF STATISTICS.

During the greater part of the year the Editorial Division has, unfortunately, been without a head. The editor who was appointed under the new appropriation for that purpose for the year 1910 has been obliged to withdraw from the service because of ill health. The position has again been filled, but the new editor did not enter on duty until September 1, 1910. A smaller number of bulletins has accordingly been issued during the latter half of the year than for the same period a year ago. Some of these, however, have been of unusual interest and have been in wide demand. The demand for the annual reports for the years 1908 and 1909 has also been unusually great. The supply of the report for 1908 has been reduced to a very few copies, and it has been necessary of late to refuse many requests for these volumes. The issue of the year 1909 is also becoming depleted. One reason, undoubtedly, for the increasing demand for these annual reports is the fact that, by arrangements within this office and with the Public Printer, they are now issued shortly after the close of the year to which they relate. The first volume of the report for the year 1909 appeared in the last week of November, 1909, and the second volume, containing the statistical tables, in the first week of April, 1910.

In addition to the collection and compilation of the usual statistical data for the annual report, the Division of Statistics collected much information for a number of special reports on various phases of education.

LIBRARY DIVISION.

For the past year this division has maintained, in general, its current activities, but the rate of progress in the reorganization of the collections has been unsatisfactory, owing chiefly to the smallness of its working staff.

The total number of volumes accessioned during the year was 6,470, those acquired by gift, by exchange, and by purchase numbering 1,890, and those from binding 4,580; of serial and periodical publications, 16,810 numbers were accessioned. There were 6,020 volumes classified and catalogued, as against 5,576 in 1908–9 and 3,796 in 1907–8. The bibliographical service has continued to advance, 506 bibliographies having been compiled, as against 386 in 1908–9 and 166 in 1907–8. The division has also answered a large number of inquiries by means of brief memoranda. Improved methods of placing orders for purchases have been introduced.

The annual bibliography of education for the year 1908–9 was published in January last, and the compilation of the issue for 1909–10, which is to appear before the beginning of the winter, is now well under way. The division has prepared during the year also a list of college and student periodicals currently received by the libraries in the District of Columbia, published as chapter 14 in the annual report for 1909, and a list of publications of the United States Bureau of Education, 1867–1910, published as Bulletin 1910, No. 3.

To provide for the normal growth of its collections, the library must secure additional room in the near future. Another pressing need is the installation of modern metal shelving. This improvement in equipment, it is hoped, may be begun during the present fiscal year.

DIVISION OF CORRESPONDENCE AND RECORDS.

The correspondence of the office continues to increase, the number of letters received during the year amounting to 18,463. There were distributed during the year 106,950 copies of the publications of the bureau.

ALASKA DIVISION.

The responsibility of this office for the education of natives of Alaska provides it with an experiment station of vast proportions and presenting unusual advantages. The work in the more remote regions of that field is carried on under great difficulty. Nevertheless, its value for experimental purposes is recognized, and this aspect of the work of the bureau in Alaska is receiving new attention. It in no way detracts from the seriousness of this educational undertaking that, while serving its own immediate purpose, it is made to serve also the needs of judicious experimentation.

THE ALASKA SCHOOL SERVICE.

During the fiscal year ended June 30, 1910, the Bureau of Education maintained 77 United States public schools for natives of Alaska (8 more than during the previous fiscal year), with a corps of 5 superintendents, 98 teachers, 8 physicians, 3 nurses, and 6 contract physicians; 3,962 pupils were enrolled, with an average attendance of 1,704. Many adults not enrolled as pupils received instruction and assistance.

The establishing of a supply and disbursing office in Seattle, Wash., and of a disbursing office in Nome, Alaska, has resulted in more efficient administration with regard to the purchase, inspection, and shipment of supplies and in expediting payments for expenditures.

During the summer of 1909, 13 additional school buildings were provided. Of the 37 school buildings erected during 1907, 1908, and 1909, 15 contain, in addition to the schoolroom, an industrial room, kitchen, and quarters for the teacher. Two industrial buildings, containing also laundry and bathrooms for the use of the natives, have been erected in two of the largest of the Eskimo villages. The schools have been generally equipped for industrial work. Adaptation of the old schoolhouses to meet the demands of the new work has been made when necessary. Instruction in agriculture, cooking, sewing, bench work, washing of clothes, cleaning of houses, sanitation, and hygiene is now general in the native villages throughout Alaska.

The effort of previous years to give the natives medical aid and instruction in sanitation through physicians and teachers was extended to the employment of nurses, whose work has shown excellent results.

The expenditures for the relief of destitute natives during the fiscal year 1910 amounted, approximately, to $4,000, as against $7,000 for the previous fiscal year. In all possible cases able-bodied natives are required to perform, in exchange for supplies received, an equivalent amount of labor in furnishing firewood for use in the schools, in cleaning the school premises, or in removing refuse from the vicinity of the native houses.

In order to increase the efficiency of the work of this bureau in Alaska, legislation is desired (1) conferring upon the Secretary of the Interior the authority to frame a sanitary code applicable to all natives of Alaska; (2) permitting the erection and equipment of hospitals which will serve as centers for the relief of disease and for instruction to native girls in nursing; (3) requiring the attendance at school of every child between the ages of 5 and 15 during such time as the family of said child is in the village, except in case of mental or physical incapacity or when the services of the child are needed to support the family or himself.

The following is a summary of expenditures from the fund for education of natives of Alaska:

Appropriation		$200,000.00
Salaries in Alaska	$87,327.81	
Equipment and supplies	9,039.78	
Fuel and light	12,119.12	
Local expenses	2,024.01	
Freight	10,867.39	
Repairs and rent	4,139.91	
Janitors	417.42	
Buildings	23,553.02	
Medical relief	15,221.24	
Destitution	3,690.42	
Commissioner's office expenses	800.00	
Seattle office expenses	500.00	
Commissioner's office salaries	5,897.23	
Seattle office salaries	5,450.83	
Traveling expenses	12,976.63	
Contingencies	5,975.19	
Total		200,000.00

THE ALASKA REINDEER SERVICE.

Few statistical reports for the fiscal year ended June 30, 1910, have as yet been received regarding the reindeer herds in Alaska. The latest available statistics are those of the fiscal year ended June 30, 1909, according to which the total number of domestic reindeer in

Alaska was 22,915, distributed among 34 herds in connection with 28 stations, of which 18 were under the control of the Government and 10 under the control of missionary organizations. Of the total number of reindeer the United States owned 19 per cent, the missions 17 per cent, Lapps 15 per cent, and the natives 49 per cent, as against 46 per cent during the previous year. The increase in the number of reindeer owned by the natives was the result of the establishment of 5 new stations as additional centers of distribution, the transfer of reindeer to natives in payment for services rendered, and increase in the number of apprentices at the reindeer stations.

The most striking feature of the reindeer industry during the year was the increase of the income from the sale of reindeer products from $6,005.20 in 1908 to $26,270.92 in 1909, of which amount the natives' share was $18,212.03, the balance having been received by missionary organizations and private owners other than natives. This demonstrates the fact that the reindeer industry has become one of the most important features in the economic life of the Eskimo.

The following is a summary of expenditures from the fund "Reindeer for Alaska, 1910:"

Appropriation		$12,000.00
Salaries of chief herders	$1,969.17	
Supplies	6,375.78	
Freight	2,387.24	
Establishing new herds	564.17	
Contingencies	703.64	
Total		12,000.00

REPORTS REQUIRED BY STATUTE.

AGRICULTURAL AND MECHANICAL COLLEGES.

During the year the reports which the institutions endowed under the acts of Congress approved August 30, 1890, and March 4, 1907, for the more complete endowment and support of colleges of agriculture and the mechanic arts, are required to make were examined in this office and it was found that the appropriations made for said institutions were expended for the purposes specified in those acts. Each of the 50 States and Territories has, therefore, received for the year ending June 30, 1911, the sum of $45,000, making a total amount paid out for the year from the Treasury of the United States of $2,250,000.

NATIONAL EDUCATION ASSOCIATION.

The secretary of the National Education Association reports for the year ended June 30, 1910, the value of the total personal property of the association as $11,300; permanent invested fund,

$170,100; net revenue from invested fund, $6,761.73; total receipts for current expenses, $34,787.97; total expenses, $30,235.92; balance June 30, 1910, $4,552.05. The chief sources of revenue are membership fees, proceeds of sale of volumes and reports, and revenue from invested funds; the chief sources of expense are printing and distribution of the volumes of proceedings, maintenance of the secretary's office and clerical force at Winona, Minn., and the expenses in connection with the annual convention.

The total registration at the annual meeting held in Boston, Mass., July, 1910, was 12,385, including associate members. There are now about 7,000 active members enrolled.

APPROPRIATIONS.

The appropriations made for the general work of the Bureau of Education for twelve years, including the appropriations for the current fiscal year, are shown in the following table:

Appropriations for Bureau of Education.

Year.	Salaries.	Library.	Distributing documents.	Collecting statistics.	Rent.	Printing of annual reports.[a]	Total.
1900	$52,020	$250	$2,500	$2,500	$4,000	$32,922	$94,192
1901	53,620	250	2,500	2,500	4,000	33,444	96,314
1902	54,120	250	2,500	2,500	4,000	34,466	97,836
1903	54,740	250	2,500	2,500	4,000	31,280	95,270
1904	52,940	250	2,500	2,500	4,000	31,800	93,990
1905	52,940	250	2,500	2,500	4,000	32,740	94,930
1906	53,140	250	2,500	2,500	4,000	34,000	96,390
1907	54,940	250	2,500	2,500	4,000	20,000	84,190
1908	55,500	250	2,500	4,000	4,000	40,000	106,250
1909	56,500	500	2,500	4,000	4,000	20,000	87,500
1910	61,200	500	2,500	4,000	4,000	22,500	94,700
1911	65,200	500	2,500	4,000	0	25,000	97,200

[a] From 1900 to and including 1906 the sums given represent the actual cost of the bureau's quota of the annual reports, which was paid from the appropriation for printing and binding for Congress. Since 1906 Congress has limited the amount that may be expended in the publication of each annual report. In 1908 provision was made for the publication of two reports, in order to bring such publications up to date.

RECOMMENDATIONS.

From time to time I have called attention to the need in this office of an adequate staff of specialists in different aspects of American education. Along with the employment of such specialists at adequate salaries, there is need of provision for a sufficient clerical staff to enable them to work to advantage, and also provision for miscellaneous expense, especially the necessary expense of travel in this country. An organized group of such specialists, with all necessary provision for their work both at Washington and in the field, is what is greatly desired. I am submitting estimates for new appropriations for this purpose aggregating $75,000. The beginnings which have already been made by the bureau in work of this kind show that the plan proposed is practicable, and the call for additional work of the same kind which comes in from all directions shows that it would fill a distinct and urgent need. I beg to recommend that these estimates be placed before Congress with some indication of the demand for such provision which has come to this office from different parts of the country.

All of which is respectfully submitted.

ELMER ELLSWORTH BROWN,
Commissioner.

The SECRETARY OF THE INTERIOR.

REPORT OF THE DIRECTOR OF THE UNITED STATES GEOLOGICAL SURVEY.

REPORT OF THE DIRECTOR OF THE UNITED STATES GEOLOGICAL SURVEY.

GEORGE OTIS SMITH, *Director*.

The appropriations for the work of the United States Geological Survey for the fiscal year 1909–10 comprised items amounting to $1,497,815. The plan of operations was approved by the Secretary of the Interior, and a detailed statement of the work of the several branches and divisions of the Survey is presented on later pages of this report.

SPECIAL FEATURES OF THE WORK.

PROGRESS IN LAND CLASSIFICATION.

OUTLINE OF WORK.

The work of the land-classification board is for the most part based on field investigations made by other sections, divisions, and branches of the Survey, as well as by the General Land Office. The land-classification work during the year has included—

1. The preparation of withdrawals covering power sites and coal, oil, gas, and phosphate lands.
2. The classification and restoration of withdrawn lands and the classification of certain mineral claims in national forests.
3. The designation of lands under the enlarged-homestead act and the consideration of petitions for such designation.
4. The consideration of applications for the reclassification of lands classified as coal land and of referred reports of special agents of the General Land Office with respect to the mineral character of classified, withdrawn, and other lands.
5. Reports to the Secretary, Land Office, and Indian Office regarding the possibility of developing power on lands involved in applications under the right-of-way acts and regarding the feasibility of proposed irrigation enterprises under the Carey Act.

PHOSPHATE LANDS.

Withdrawals of public phosphate lands have been made in aid of proposed legislation, for the reason that many conflicting claims have arisen through efforts to locate and acquire title to such lands under existing laws and for the further reason that the maintenance of the agricultural wealth of the country requires that the exportation of these supplies of valuable plant food be prevented by some effective method.

The field examination of these withdrawn lands is being energetically pushed, so that all lands which are in fact not underlain by phosphate deposits may be promptly released from these withdrawals and new phosphate territory may be included. During the fiscal year areas aggregating 2,322,416 acres, which had been included in phosphate withdrawals, have been restored to entry as the result of field work showing that they are not valuable for phosphate, and 401,954 acres of new phosphate territory found by these examinations have been included in the withdrawals. The withdrawals by States are tabulated elsewhere (p. 47).

POWER SITES.

The policy of withdrawing lands in aid of proposed legislation affecting the use and disposition of water-power sites was actively continued during the year at the rate of about 100,000 acres a month, the total withdrawals for the year amounting to 1,219,818 acres. As a result of field work showing the lands not to be valuable for power 45,189 acres were released from existing withdrawals and restored to the public domain. The areas covered by withdrawals in the several States, as well as the total area covered by outstanding withdrawals on July 1, 1910, are given in the table on page 48.

COAL LANDS.

The energies of the coal-land classification board have been directed toward the completion and systematization of the records of past investigations and actions; the classification and appraisement of the large areas which had been examined in previous years but on which no classification had been reported; the reclassification, under the new regulations of April 10, 1909, of all areas previously classified; and the withdrawal of areas which by these former examinations were indicated to contain valuable deposits of coal but with regard to which the information at hand was not sufficient for a complete classification and appraisement.

Classifications and valuations.—The board has during the year classified and appraised, with respect to coal value, 14,512,932 acres which had not previously been classified, of which 587,306 acres were required to offset the amount lost by rewithdrawals where new data indicated the existing classifications to be erroneous. It has reclassified 4,206,528 acres covered by former classifications. These, with the areas restored without appraisal because they are private lands, or without classification because of their doubtful value as to coal, amounting to 2,602,215 acres, make a total of 21,321,675 acres acted on during the year. The total value of the 5,618,769 acres appraised as coal land during the year, at the minimum price fixed by law, is $87,816,599; the value fixed by the board is $380,955,646, an increase of approximately $300,000,000. The total area on June 30, 1910, covered with classification and appraisement as coal land, under both the old and the new regulations, is 10,031,390 acres, and the total appraised value of those lands is $449,876,208. The progress of coal-land classifications and the net areas covered by existing classifications under the old and new regulations on July 1, 1909, and July 1, 1910, exclusive of restorations without classification and of classifications as coal land without appraisement, are shown in the table on page 45.

Withdrawals.—The coal-land withdrawals have been extended during the year to cover the principal remaining areas of the extensive coal fields in eastern Montana and Wyoming, only portions of which had been previously withdrawn. These withdrawals, together with those covering newly discovered coal fields in Utah and Arizona and the rewithdrawal of 587,306 acres where new data indicated the existing classifications to be erroneous, make a total withdrawal for the year of 20,425,728 acres.

Recommendations for withdrawal covering the very extensive area of low-grade coal lands in North Dakota and South Dakota were prepared during the fiscal year, but the withdrawals were not made until the early part of July, 1910. Although these lands had been known for many years to contain coal, inclusive withdrawals had not been made for the reason that the agricultural value of the land was almost everywhere greater than the coal value, and the value of the coal was not deemed sufficient to warrant the great retardation of development which would follow withdrawal. With the passage of the law making it possible to obtain patent to the surface of coal lands under the agricultural-land laws, this objection to withdrawal no longer existed. It is believed that with these new withdrawals in Montana, Wyoming, Utah, Arizona, North Dakota, and South Dakota only small areas of public lands will be found to contain coal in amounts which will make additional withdrawals necessary, except in coal fields in existing Indian reservations.

The outstanding withdrawals on July 1, 1909, and July 1, 1910, together with a summary statement of new withdrawals and actions which have tended to reduce existing withdrawals, are given by States in the table on page 46.

OIL LANDS.

At the beginning of the fiscal year oil-land withdrawals from agricultural entry included 2,270,144 acres in California and 173,530 acres in Wyoming, and oil-land withdrawals from all acquisition covered 1,451,520 acres in Louisiana (of which only 6,599 acres are known to be vacant unappropriated land) and 74,849 acres in Oregon.

On September 26, 1909, the President decided that all public oil lands should be withheld from all disposition pending Congressional action, for the reason that the existing mineral-land law is not well adapted to deposits of this character and for the further reason that it seemed desirable to reserve certain fuel-oil deposits for the use of the American navy. Accordingly, the form of all existing withdrawals was changed, and new withdrawals aggregating 2,749,260 acres were made in Arizona, California, Colorado, New Mexico, Utah, and Wyoming. Field examinations passed on by the oil-land classification board during the year resulted in the restoration of 2,172,182 acres of land which were found not to be valuable for oil. The aggregate areas in the several States covered by withdrawals outstanding July 1, 1909, and July 1, 1910, are presented in the table on page 47, together with a summary statement of the restorations of lands found not to be valuable for oil.

GEOLOGIC INVESTIGATIONS.

Geologic surveys and investigations were continued during the year in 32 States and Territories, and over 66 per cent of the appropriation for geologic surveys was expended in the 16 public-land States and Territories. In connection with the land-classification work, about 15,300 square miles of supposed coal territory in the Rocky Mountain region were examined. Other work in the public-land States included continuation of the study of the phosphate deposits in Idaho, Wyoming, and Utah and systematic, detailed surveys of important mining districts in Washington, Colorado, Utah, Nevada, California, Idaho, Arizona, and Missouri and of oil fields in southern California and Oklahoma.

Under instructions of the Secretary of the Interior, C. A. Fisher was detailed to examine for the General Land Office the group of coal claims in Alaska under investigation by that bureau and spent about two months and a half in this work.

HISTORY OF TECHNOLOGIC INVESTIGATIONS.

The organization of the Bureau of Mines July 1, 1910, makes this report of the Geological Survey an appropriate place to review the work now transferred to that bureau.

AUTHORITY.

The Survey's investigation of fuels had its beginning in the appropriation act of February 18, 1904, carrying $30,000 "for analyzing and testing at the Louisiana Purchase Exposition the coals and lignites of the United States, * * * under the supervision of the Director of the United States Geological Survey." This was followed by other appropriations—$30,000 April 27, 1904; $25,000 January 5, 1905; $202,000 March 3, 1905; $250,000 for each of the fiscal years 1906, 1907, 1908, and 1909; and $100,000 for the fiscal year 1910.

The investigation of structural materials under the Geological Survey was authorized under the sundry civil appropriation act of March 3, 1905, carrying $7,500 for this purpose, and the deficiency appropriation act of the same date, carrying $5,000. The work was enlarged and continued by appropriations of $100,000 for each of the fiscal years 1907, 1908, 1909, and 1910.

The investigations as to the causes of mine explosions, with a view to increasing safety in mining, were first authorized in the legislative appropriation act of May 22, 1908, carrying for this purpose an appropriation of $150,000. This was followed by a similar appropriation in the act providing for the sundry civil expenses of the Government for 1910. A fully equipped mine experiment station was established in Pittsburg during 1908, at which investigations of explosives, coal gas, dust, electricity, and other possible causes of mine explosions have since been continually under way.

Through the courtesy and cooperation of the Louisiana Purchase Exposition and the city of St. Louis, the investigations of fuels and structural materials were continued on the exposition grounds during 1905 and 1906 and those of structural materials until 1909. During 1907 the fuel investigations were transferred to Norfolk, Va., and early in 1908 to Pittsburg, where a large part of the work on structural materials also is now done. In April, 1907, these two series of investigations were, by order of the Secretary of the Interior, included in an administrative unit—the technologic branch of the Geological Survey.

The act establishing the Bureau of Mines, approved May 16, 1910, as amended in the sundry civil appropriation act approved June 25, 1910, transfers to that bureau the investigations, personnel, and equipment of the fuels and mine-accidents divisions of the technologic branch of the Geological Survey, to take effect July 1 of this year. The sundry civil act also provides that the structural-materials investigations heretofore carried on by the Geological Survey shall be continued by the Bureau of Standards.

INVESTIGATION OF MINE ACCIDENTS.

The study of mine explosions and their causes at the Pittsburg station has been developed under five phases, as follows:

1. Investigations in the mines to determine the conditions leading up to mine explosions and means of preventing them.

2. Investigations of explosives used in coal mines, to determine those that can be used with least risk in mines where gas or inflammable dust may be found.

3. Investigations of the conditions under which electric equipment can be safely used in coal-mining operations where there is risk of explosions.

4. Investigations of mine lamps as possible causes of mine explosions, and of the relative safety and efficiency of mine lamps of different types.

5. Investigations of the various types of artificial breathing apparatus suited for use in the study of mine disasters.

The mining engineering field force of the Geological Survey has already made decided progress in the study of underground mining conditions and methods. Practically all the coal mines in which explosions have occurred during the last two years have been carefully examined; the gases, coal dust, coke, etc., have been analyzed at the Pittsburg laboratory; and every effort has been made to determine the explosibility of various mixtures of gas and air in the presence of shots of explosives of different types. Investigations have been made as to the explosibility of dust from various typical coals under similar conditions, the chemical composition and physical characteristics of this dust and of the coal from which it is formed, and the methods of preventing dust explosions by wetting the dust by sprinkling or other methods.

Considerable progress has been made also in the investigation of explosives used in coal mining and the determination of the conditions under which they may be used with least risk, especially where either gas or inflammable coal dust is present in quantities that indicate danger. In arranging for this work, the manufacturers of explosives were invited to submit for test, according to a published program, such of their explosives as they had reason to believe might meet the conditions prescribed. In response to this invitation a number of explosives have been submitted for investigation, and a considerable portion of them have passed the required tests and have therefore been classed among the "permissible explosives." Three lists of such explosives have been published, the latest (May, 1910) containing a total of 45 permissible explosives.

The investigations in connection with electricity as one of the possible causes of coal-mine explosions have related mainly to inclosed electric fuses, as to whether, in actual use, they may or may not ignite an explosive mixture of air and gas or inflammable dust; to the development of electric methods of determining automatically the percentage of gas present in air in different parts of the mine and indicating it in the superintendent's office; to the relative safety and permanence of different types of insulation of electric wires under mine conditions;

and to the conditions under which closed electric motors may be safely used in gaseous or dusty mines.

The investigations and educational work in connection with the use of artificial breathing apparatus and other types of mine rescue equipment have been useful in developing better methods for using such equipment both in the examination of mines in which explosions have occurred and in mine rescue work. As an outgrowth of the work already done four branch mine rescue experiment stations have already been established and nine others have been authorized by Congress; and three fire-fighting and mine rescue stations have been authorized by the general assembly of Illinois and will be established during the next few months. In addition, many mining companies have purchased mine rescue equipment for establishing local stations of their own in all the more important coal fields.

FUEL TESTING.

The work of the fuel division during the current fiscal year, owing to the reduction in its appropriation from $250,000 to $100,000, has been confined largely to the routine testing of coal and other mineral fuels needed for use by the Government. This phase of the work has developed to such an extent that nearly all the fuel now purchased by the Government is either purchased on specifications and subject to tests by the fuel division or purchased after examinations of the coal supplied by the mines from which coal is delivered to the Government.

In addition to this routine testing work, certain investigations have been conducted during the year to promote increased efficiency in the use of fuel by the Government; also general investigations concerning the processes of combustion, the organic composition of coal, the causes of and methods of preventing spontaneous combustion, and other allied subjects that are considered to have a special bearing on the government work.

The investigations begun at St. Louis and continued at Norfolk in connection with the testing of coal under boilers and in gas producers have been, for the most part, necessarily discontinued, and final reports on these subjects are nearly ready for publication.

Investigations as to the adaptability of different grades of coal for briquetting are now limited largely to laboratory investigations of binding materials and experiments in briquetting lignites and lignitic coals from the public-land States.

The chemical laboratories associated with this division have not only made the routine analyses of coals purchased by the Government but have also analyzed many samples of coal collected by the geologists of the Survey in connection with the classification of the public lands.

The investigations into the waste in the mining and utilization of coal have brought out important information as to the nature and extent of this waste and have proved useful in awakening the public to the need of improving the conditions to which it is now largely due. During the last two years much attention has also been given to the problem of a more extensive and less wasteful use of other mineral fuels, especially natural gas, fuel oil, and oil products.

The fuel investigations have also included an inquiry into the possibility of substituting peat for mineral fuels in regions where the latter are scarce and expensive.

INVESTIGATION OF STRUCTURAL MATERIALS.

The investigation of structural materials begun at St. Louis in 1905 was a continuation of and followed logically from the investigations of cement-making materials, building stone, and clays which had been carried on to some extent by the Geological Survey for several years.

Tests of cement were made at St. Louis during the Louisiana Purchase Exposition under the auspices of the Association of American Portland Cement Manufacturers, who had prepared for the exposition a cement pavilion with three rooms, in the largest of which was a working exhibit of cement and concrete testing machinery. At the close of the exposition this pavilion and other necessary buildings were placed at the disposal of the Government for use in the structural-materials investigations then proposed. The enlargement of the work in 1906 made necessary the acquirement of additional buildings for the housing of the laboratories, and the exposition authorities granted for this work the free use of the foundry exhibit building (100 by 125 feet) and metal pavilion (100 by 60 feet floor space). Owing to the necessity of removing these buildings from the exposition grounds, which were retransferred to the city of St. Louis as a part of the public park, and the inability of the Survey to obtain quarters for the work elsewhere in St. Louis, the structural-materials investigations were transferred to the government buildings available for them on the arsenal tract in Pittsburg.

Although the purpose of these investigations has been primarily to meet the Government's own needs, incidentally the results are published in such a manner as to make them of value to the engineering profession and to the general public.. Moreover, these investigations were so planned as to make use of and to correlate all similar work by others, in state testing laboratories, in the testing laboratories of universities, and through the agencies of engineering societies and their joint committees.

The investigations conducted during the year include inquiries into the nature, extent, and distribution of materials needed for the use of the Government in its building and construction work. They were planned after a careful consideration of the statements of needs submitted by the Supervising Architect, the Isthmian Canal Commission, and other branches of the government service having such work in charge. They have related primarily to concrete, reenforced concrete, and other cement products and their constituent materials, clay products, stone, and miscellaneous materials, and the behavior of such structural materials under the action of fire, water, acids, alkalies, and other destructive agencies.

DISTRIBUTION OF PUBLICATIONS.

The increase in the volume of distribution of reports and maps is more than keeping pace with the growth of the Survey. The number of letters received relating to publications and the amount of money received from sales of publications furnish, perhaps, the best index of the relation of the Survey to the public. The increase for 1910 over 1909 in such letters received was more than 20 per cent, and the money receipts show a gain of more than 6 per cent. The total number of reports and maps distributed has increased more than 13 per cent. These figures may be compared with the growth in the total correspondence of the Survey, the number of pieces of incoming mail handled during the year showing an increase of not quite 9 per cent over the number in the fiscal year 1909.

WORK OF THE YEAR.

PUBLICATIONS.

The Survey's work finds public expression chiefly through its reports and maps. The publications of the last fiscal year are briefly described in the following summaries:

Thirtieth Annual Report of the Director of the United States Geological Survey to the Secretary of the Interior, for the fiscal year ended June 30, 1909. 128 pp., 2 pls.

A report on special features of the Survey's work, brief abstracts of publications of the year, and a summary of the work by branches and divisions, with maps showing the progress of topographic and geologic surveys.

Professional Paper 64. The Yakutat Bay region, Alaska (Physiography and glacial geology by Ralph S. Tarr; Areal geology by Ralph S. Tarr and Bert S. Butler). 183 pp., 37 pls., 10 text figures.

An elaborate description of the region, especially of its glacial history, with chapters on early exploration, the distribution of plants and animals, and the mineral resources.

Professional Paper 65. Geology and water resources of the northern portion of the Black Hills and adjoining regions in South Dakota and Wyoming, by N. H. Darton. 105 pp., 24 pls., 15 text figures.

Describes the geology of the sedimentary rocks—their stratigraphy, structure, and geologic history—and discusses the mineral resources of the region, including underground water, coal, gypsum, and other minerals. Also contains information respecting surface waters available for irrigation and stock raising and notes on timber and climate. The illustrations comprise geologic and topographic maps, a map showing the distribution of underground waters, sections showing stratigraphy, and half-tone reproductions of photographs.

Professional Paper 66. The geology and ore deposits of Goldfield, Nev., by Frederick Leslie Ransome, assisted in the field by W. H. Emmons and G. H. Garrey. 258 pp., 35 pls., 34 text figures.

A description of the geology, geologic history, mineralogy, ore deposits, and mines of the district, with a history of mining and a list of previous reports. Contains also notes on ore treatment and an account of the origin of the mineral deposits. The illustrations include geologic maps and sections, mine plans and sections, half-tone views, and photomicrographs of ores and rocks.

Professional Paper 67. Landslides in the San Juan Mountains, Colorado, including a consideration of their causes and their classification, by Ernest Howe. 58 pp., 20 pls., 4 text figures.

A detailed description of the landslides and rock streams, a brief summary of the various views entertained concerning landslides in general, and a discussion of their nature and causes.

Bulletin 360. Pre-Cambrian geology of North America, by Charles Richard Van Hise and Charles Kenneth Leith. 939 pp., 2 pls.

A full account of the present state of knowledge of the pre-Cambrian rocks of North America, including a general description of the rocks, summaries of the literature on the several regions considered, statements of the established conclusions, and correlations of formations in the several regions. The accompanying maps show pre-Cambrian areas of North America and of the Lake Superior region.

Bulletin 377. The fauna of the Caney shale of Oklahoma, by George H. Girty. 106 pp., 13 pls.

Descriptions of species, a register of localities where the fossils were found, and half-tone figures of specimens. Includes suggestions as to age and correlations.

Bulletin 380. Contributions to economic geology, 1908: Part I, Metals and nonmetals, except fuels; C. W. Hayes and Waldemar Lindgren, geologists in charge. 406 pp., 2 pls., 32 text figures.

Introductory papers by Messrs. Hayes and Lindgren summarize the publications and field work of the year bearing on deposits of metalliferous ores and on nonmetallic mineral resources except fuels. The body of the volume comprises the following papers:

Notes on the economic geology of southeastern Gunnison County, Colo., by J. M. Hill.

The Hornsilver district, Nevada, by F. L. Ransome.

Round Mountain, Nevada, by F. L. Ransome.

Mineral resources of the Grants Pass quadrangle and bordering districts, Oregon, by J. S. Diller and G. F. Kay.

Notes on the Bohemia mining district, Oregon, by D. F. MacDonald.

Faulting and vein structure in the Cracker Creek gold district, Baker County, Oreg., by J. T. Pardee.

The Yerington copper district, Nevada, by F. L. Ransome.

The Tres Hermanas mining district, New Mexico, by Waldemar Lindgren.

Tin, tungsten, and tantalum deposits of South Dakota, by Frank L. Hess.

Note on a wolframite deposit in the Whetstone Mountains, Arizona, by Frank L. Hess.

Tonnage estimates of Clinton iron ore in the Chattanooga region of Tennessee, Georgia, and Alabama, by E. F. Burchard.

The Taylor Peak and Whitepine iron-ore deposits, Colorado, by E. C. Harder.

The Hanover iron-ore deposits, New Mexico, by Sidney Paige.

The iron ores of the Appalachian region in Virginia, by E. C. Harder.

Bulletin 380—Continued.

Manganese deposits of the United States, by E. C. Harder.

An occurrence of asphaltite in northeastern Nevada, by Robert Anderson.

Grahamite deposits of southeastern Oklahoma, by J. A. Taff.

Marble prospects in the Chiricahua Mountains, Arizona, by Sidney Paige.

The Niobrara limestone of northern Colorado considered as a possible source of Portland cement material, by G. C. Martin.

Cement material near Havre, Mont., by L. J. Pepperberg.

Ganister in Blair County, Pa., by Charles Butts.

Notes on the clays of Florida, by George C. Matson.

Sodium sulphate in Soda Lake, Carriso Plain, San Luis Obispo County, Cal., by Ralph Arnold and H. R. Johnson.

Sulphur deposits near Thermopolis, Wyo., by E. G. Woodruff.

Mica deposits of South Dakota, by D. B. Sterrett.

Lists of Survey publications on deposits of metals and nonmetals, except fuels.

Bulletin 382. The effect of oxygen in coal, by David White. 74 pp., 3 pls.

A report on the results of a comparative study of ultimate coal analyses made and published by the United States Geological Survey, showing that oxygen in coal is economically almost as undesirable as ash.

Bulletin 383. Notes on explosive mine gases and dusts, with special reference to explosions in the Monongah, Darr, and Naomi coal mines, by Rollin Thomas Chamberlin. 67 pp., 1 text figure.

A report on the conditions in the mines after the explosions, with analyses of gases, studies of coal dusts, and suggestions as to methods of preventing dust explosions.

Bulletin 384. A geological reconnaissance in northern Idaho and northwestern Montana, by F. C. Calkins, with notes on the economic geology, by D. F. MacDonald. 112 pp., 2 pls., 3 text figures.

A sketch of the geography and the areal and economic geology of the region, with detailed descriptions of certain localities and a geologic sketch map.

Bulletin 385. Briquetting tests at the United States fuel-testing plant, Norfolk, Va., 1907–8, by Charles L. Wright. 41 pp., 9 pls.

A description of the briquetting plant and of the results of tests of briquets made from several kinds of coal with different binders.

Bulletin 386. Pleistocene geology of the Leadville quadrangle, Colorado, by Stephen R. Capps, jr. 99 pp., 8 pls., 18 text figures.

A general consideration of ice action in the quadrangle, followed by a special consideration of glacial deposits and action in particular areas.

Bulletin 387. Structural materials in parts of Oregon and Washington, by N. H. Darton. 33 pp., 9 pls., 1 text figure.

An account of deposits of gravel, sand, clay, building stone, limestone, plaster, and cement materials in the regions about Portland, Oreg., and Takoma and Seattle, Wash., with maps showing location of the deposits and other illustrations.

Bulletin 388. The colloid matter of clay and its measurement, by Harrison Everett Ashley, with a preface by A. V. Bleininger. 65 pp., 1 pl., 9 text figures.

A report on a series of experiments and tests designed to afford a means of determining the plasticity of clays and the purposes to which they are best adapted.

Bulletin 389. The Manzano group of the Rio Grande valley, New Mexico, by Willis T. Lee and George H. Girty. 141 pp., 12 pls., 9 text figures.

Description of the stratigraphy of the group, by Mr. Lee, and of the fossils, by Mr. Girty.

Bulletin 390. Geology of the Lewistown coal field, Montana, by W. R. Calvert. 83 pp., 5 pls., 1 text figure.

Description of the geography, stratigraphy, and structure of the field and of the coal beds as exposed or developed at many places.

Bulletin 391. The Devonian fauna of the Ouray limestone, by E. M. Kindle. 60 pp., 10 pls.

Descriptions and figures of the fossils, with observations on the Devonian and Carboniferous divisions and fossils of the formation.

Bulletin 392. Commercial deductions from comparisons of gasoline and alcohol tests on internal-combustion engines, by Robert M. Strong. 38 pp.

Discusses differences in engines, effect of quality of fuel and of principal operating conditions, limit of rate of fuel consumption and other factors, and presents a summary of the conclusions reached.

Bulletin 393. Incidental problems in gas-producer tests, by R. H. Fernald, C. D. Smith, J. K. Clement, and H. A. Grine. 29 pp, 8 text figures.

A discussion of factors affecting the proper length of tests and differences of temperature in the fuel bed.

Bulletin 394. Papers on the conservation of mineral resources. 1909. 214 pp., 12 pls., 2 text figures. Reprinted from report of the National Conservation Commission, February, 1909.

Coal fields, by M. R. Campbell and E. W. Parker; Future coal production, by Henry Gannett; Petroleum, Natural gas, by D. T. Day; Peat, by C. A. Davis; Iron ores, by C. W. Hayes; Gold, silver, copper, lead, and zinc, by Waldemar Lindgren; Phosphate deposits, by F. B. Van Horn; Mineral resources of Alaska, by A. H. Brooks. The illustrations include maps of the United States showing coal, petroleum, and natural-gas fields, a map of Alaska showing known mineral deposits, and several diagrams showing rate and amount of mineral production.

Bulletin 395. Radioactivity of the thermal waters of Yellowstone National Park, by Herman Schlundt and R. B. Moore. 35 pp., 4 pls., 7 text figures.

A description of apparatus and methods used to determine the radioactivity of the waters and a statement and discussion of the results of the experiments.

Bulletin 396. Paleontology of the Coalinga district, California, by Ralph Arnold. 173 pp., 30 pls.

Descriptions of the geologic formations and of their contained fossils, with figures of the fossils.

Bulletin 397. Mineral deposits of the Cerbat Range, Black Mountains, and Grand Wash Cliffs, Arizona, by F. C. Schrader. 226 pp., 16 pls., 37 text figures.

A general account of the geography, physiography, and geology of the region and a detailed description of the mineral deposits seen at numerous mines. The illustrations include a geologic reconnaissance map, plans and sections of claims and mines, and half-tone views.

Bulletin 398. Geology and oil resources of the Coalinga district, California, by Ralph Arnold and Robert Anderson; with report on oils, by I. C. Allen. 354 pp., 52 pls., 9 text figures.

A discussion of the geography, topography, and geology of the district and a detailed account of the territory from which oil has been obtained, notes on the occurrence and origin of the oil, and description of individual wells, together with conclusions respecting the future development of the field, tables showing areas classified as mineral land, production and estimated supply, and oil companies and wells in the district, and a chapter on character of the oil. The illustrations embrace geologic maps and sections and figures showing fossils.

Bulletin 399. Results of spirit leveling in West Virginia, 1896–1908; compiled by S. S. Gannett and D. H. Baldwin. 81 pp.

A detailed account of precise and primary leveling, showing the altitudes above sea level of more than 1,200 points.

Bulletin 400. Iron ores, fuels, and fluxes of the Birmingham district, Alabama, by E. F. Burchard and Charles Butts; with chapters on the origin of the ores, by E. C. Eckel. 204 pp., 17 pls., 19 text figures.

A description of the general geology of the district and of the Clinton and brown ores, detailed descriptions of the mines and deposits, discussions of the origin of the ores, notes on methods of mining, and an account of the fuel and fluxes used. The illustrations include economic and geologic maps of the district and many plans, sections, and half-tone views.

Bulletin 401. Relations between local magnetic disturbances and the genesis of petroleum, by G. F. Becker. 24 pp, 1 pl.

Presents the various arguments as to the mode of origin of deposits of petroleum and other hydrocarbons and suggests that some such deposits may have originated from iron or other metallic carbides formed by the action of volcanic emanations or waters. The accompanying map, showing irregularities of compass declination in the United States, indicates that petroleum deposits are intimately associated with magnetic disturbances like those arising from the presence of minerals possessing magnetic attraction.

Bulletin 402. The utilization of fuel in locomotive practice, by W. F. M. Goss. 28 pp., 8 text figures.

A report on tests made at the locomotive-testing laboratory of Purdue University, at Lafayette, Ind., with a view of obtaining greater economy and efficiency of service.

Bulletin 403. Comparative tests of run-of-mine and briquetted coals on the torpedo boat *Biddle*, by W. T. Ray and Henry Kreisinger. 49 pp., 10 text figures.

Report on tests made to determine the relative efficiency of briquets and raw coal as fuel on United States torpedo boats.

Bulletin 404. The granites of Vermont, by T. Nelson Dale. 138 pp. 5 pls., 25 text figures.

Scientific and economic discussions of the granites, with detailed accounts of the granite quarries. The report contains a bibliography of the economic geology of granite and is illustrated by maps, diagrams, and half-tone plates.

Bulletin 405. Mercury minerals from Terlingua, Tex., by W. F. Hillebrand and W. T. Schaller. 174 pp., 6 pls., 44 text figures.

A report on the occurrence and associations of the minerals and descriptions of their crystallography, with numerous figures showing forms of crystals.

Bulletin 406. Preliminary report on the McKittrick-Sunset oil region, California, by Ralph Arnold and H. R. Johnson. 225 pp., 5 pls., 2 text figures.

An account of the geography, topography, and geology of the region, the water supply, and the oil fields. Includes lists of areas classified as oil lands and areas withdrawn, a list of oil companies, and tables showing the production of oil by years. The illustrations include geologic maps of the region, showing the structure.

Bulletin 407. Geology and ore deposits of the Bullfrog district, Nevada, by F. L. Ransome, W. H. Emmons, and G. H. Garrey. 130 pp., 14 pls., 20 text figures.

Descriptions of the general and economic geology of the district, with geologic maps and sections, plans of mines, diagrams showing structure, and many half-tone views.

Bulletin 408. Reconnaissance of some mining camps in Elko, Lander, and Eureka counties, Nev., by W. H. Emmons. 130 pp., 5 pls., 22 text figures.

A report on the geology, mines, and mineral deposits of the district, with numerous maps and diagrams.

Bulletin 409. Bibliography of North American geology for 1908, by J. M. Nickles. 148 pp.

A list of papers published in 1908 on North American geology, arranged alphabetically by names of authors, an index of subjects or materials, and lists showing chemical analyses reported and minerals, rocks, and formations described.

Bulletin 410. The Innoko gold-placer district, Alaska, with accounts of the central Kuskokwim Valley and the Ruby Creek and Gold Hill placers, by A. G. Maddren. 87 pp., 5 pls.

An account of the geography, history, and other features of the district, including routes of travel, a sketch of the geology, and a report on the mineral resources. The illustrations include geologic and topographic maps.

Bulletin 411. Results of spirit leveling in Ohio, 1898–1908, compiled by S. S. Gannett and D. H. Baldwin. 147 pp.

A report on precise and primary leveling in the State, including statements of the altitude above sea level of more than 1,300 places.

Bulletin 412. Tests of run-of-mine and briquetted coal in a locomotive boiler, by W. T. Ray and Henry Kreisinger. 32 pp., 9 text figures.

A description of the fuels, apparatus, and methods employed, and a statement of the results of the tests.

Bulletin 413. A reconnaissance of the gypsum deposits of California, by F. L. Hess; with a note on errors in the chemical analysis of gypsum, by George Steiger. 37 pp., 4 pls., 2 text figures.

A description of the deposits in detail, with maps, sections, and half-tone views.

Bulletin 414. Notes on some mining districts in Humboldt County, Nev., by F. L. Ransome. 75 pp., 1 pl., 7 text figures.

Descriptions of the geology and mineral deposits of the Seven Troughs, Rosebud, and Red Butte mining districts and the Humboldt, Pahute, and Sonoma ranges, and an account of the mineralogy of the ore deposits.

Bulletin 415. Coal fields of northwestern Colorado and northeastern Utah, by H. S. Gale. 265 pp., 22 pls., 8 text figures.

An account of the geography and geology of the region and detailed descriptions of the Grand Hogback, Danforth Hills, lower White River, Vernal, western Yampa, and Henrys Fork coal fields, with a chapter on the quality of the coals. The illustrations include topographic and geologic maps, structure sections, and half-tone views.

Bulletin 416. Recent development of the producer-gas power plant in the United States, by R. H. Fernald. 82 pp., 2 pls., 3 text figures.

A report on producer-gas tests made by the Geological Survey and an account of the present status of the producer-gas power plant, with opinions of the operators of plants, summaries and particulars concerning plants visited, and a list of installations in the United States.

Bulletin 417. Mineral resources of the Nabesna-White River district, Alaska, by F. H. Moffit and Adolph Knopf; with a section on the Quaternary, by S. R. Capps. 64 pp., 5 pls., 3 text figures.

An account of the geography, geology, and mineral resources of the district, with topographic and geologic maps and half-tone views.

Bulletin 418. The fire tax and waste of structural materials in the United States, by H. M. Wilson and J. L. Cochrane. 30 pp.

An account of the methods adopted to collect statistics, statements of the results of the inquiries made, and comparisons of the fire waste in the cities of the United States with that in cities in Europe, with suggestions as to methods of reducing fire losses.

Bulletin 419. Analyses of rocks and minerals from the laboratory of the United States Geological Survey, 1880–1908, by F. W. Clarke. 323 pp.

A report of chemical analyses of rocks, clays, and soils, arranged by States, and of meteorites and minerals.

Bulletin 420. Economic geology of the feldspar deposits of the United States, by E. S. Bastin. 85 pp., 8 pls.

Descriptions of the chemical and physical characters of feldspars, of their origin and geologic occurrence, methods of mining and milling, uses, grades, prices, and production, and an account of deposits of feldspar by States. The illustrations include maps and half-tone views.

Bulletin 421. Results of spirit leveling in Illinois, 1896–1908, compiled by S. S. Gannett and D. H. Baldwin. 74 pp.

A report on precise and primary leveling, giving altitudes of more than 400 places in the State.

Bulletin 422. The analysis of silicate and carbonate rocks (a revision of Bulletin 305), by W. F. Hillebrand. 239 pp., 27 text figures.

A detailed description of the various methods of analysis, with diagrams showing the apparatus employed.

Bulletin 423. A primer on explosives for coal miners, by C. E. Munroe and Clarence Hall. 61 pp., 9 pls., 12 text figures.

A discussion of combustion and explosion, of various explosives, squibs, fuses, and detonators, of methods of mining coal with explosives, loading and firing charges, and of means of safe shipment and storage of explosives, with illustrations showing materials and methods.

Bulletin 424. The valuation of public coal lands: The value of coal land, by G. H. Ashley; Depth and minimum thickness of beds as limiting factors in valuation, by C. A. Fisher. 75 pp.

A statement of the laws relating to coal lands and the areas of coal lands classified, with discussion of the royalty value of coal land, factors affecting the sale price of the land, consideration of its market value, statement of the basis of the government valuation of coal lands, and a discussion of maximum depth of coal mining and minimum thickness of minable beds.

Bulletin 428. The purchase of coal by the Government under specifications, with analyses of coal delivered for the fiscal year 1908–9, by G. S. Pope. 80 pp.

A report setting forth the factors affecting the value of coal as a fuel and a statement of the Government's plan of purchasing coal under specifications, with descriptions of methods of sampling and testing, form of specifications, and tables showing the extent of the Government's use of coal.

Water-Supply Paper 227. Geology and underground waters of South Dakota, by N. H. Darton. 156 pp., 15 pls., 7 text figures.

A detailed description of the stratigraphy of the Black Hills region and summary accounts of the geology of other parts of the State, a brief description of the water horizons, and descriptions by counties of deep wells and well prospects, with a chapter on the construction and management of artesian wells. The illustrations include a geologic map, a map showing artesian conditions, other maps, diagrams, and half-tone views.

Water-Supply Paper 232. Underground water resources of Connecticut, by Herbert E. Gregory, with a study of the occurrence of water in crystalline rocks, by E. E. Ellis. 200 pp., 5 pls., 31 text figures.

A description of the geography, geology, and ground waters and of the character of the water, with chapters on well construction and springs. Contains maps showing distribution of chlorine, other maps, and diagrams and half-tone views.

Water-Supply Paper 233. Water resources of the Blue Grass region, Kentucky, by George Charlton Matson, with a chapter on the quality of the waters, by Chase Palmer. 223 pp., 3 pls., 6 text figures.

Describes briefly the geology, physiography, soils, and surface waters, treats in detail the underground waters, the source of municipal supplies, and the condition in each county, and discusses the chemical content of the waters, including those of the mineral springs.

Water-Supply Paper 234. Papers on the conservation of water resources. Reprinted from report of the National Conservation Commission, February, 1909. 96 pp., 2 pls.

Papers on distribution of rainfall, by Henry Gannett; on floods and on developed and undeveloped water powers, by M. O. Leighton; on irrigation, by F. H. Newell; on underground waters, by W. C. Mendenhall; on denudation, by R. B. Dole and Herman Stabler; and on control of catchment areas, by H. N. Parker. Contains maps of the United States showing mean annual precipitation and percentages of annual precipitation received during the warmer months.

Water-Supply Paper 235. The purification of some textile and other factory wastes, by Herman Stabler and Gilbert H. Platt. 76 pp.

Studies of the pollution of streams by wastes from wool scouring, bleaching and dyeing cotton yarn, bleaching cotton piece goods, and by the manufacture of oleomargarine, fertilizer, and glue, and report on experiments for purification of the wastes.

Water-Supply Paper 236. The quality of surface waters in the United States. Part I. Analyses of waters east of the one hundredth meridian, by R. B. Dole. 123 pp.

States methods of examination, the probable accuracy of the analytical results and the mode of expressing them, and the location of the sampling stations, and presents mineral analyses of samples of water taken from many rivers.

Water-Supply Paper 238. The public utility of water powers and their governmental regulation, by René Tavernier and Marshall O. Leighton. 161 pp.

An introduction by Mr. Leighton; chapters on French and foreign legislation affecting water powers, proposed French laws, and a review of the French administrative work in hydraulics and agricultural improvements, by Mr. Tavernier; and a chapter on water-power legislation in the United States, by Mr. Leighton.

Water-Supply Paper 239. The quality of the surface waters of Illinois, by W. D. Collins. 94 pp., 3 pls.

An outline of the physical and economic features of the State and a detailed consideration of the quality of the waters, with many mineral analyses.

Water-Supply Paper 241. Surface water supply of the north Atlantic coast, 1907–8, by H. K. Barrows and R. H. Bolster. 356 pp., 6 pls.

Water-Supply Paper 242. Surface water supply of the south Atlantic coast and eastern Gulf of Mexico, 1907–8, by M. R. Hall and R. H. Bolster. 226 pp., 3 pls., 1 text figure.

Water-Supply Paper 243. Surface water supply of the Ohio River basin, 1907–8, by A. H. Horton, M. R. Hall, and R. H. Bolster. 224 pp., 4 pls., 1 text figure.

Water-Supply Paper 244. Surface water supply of the St. Lawrence River basin, 1907–8, by H. K. Barrows, A. H. Horton, and R. H. Bolster. 163 pp., 7 pls., 1 text figure.

Water-Supply Paper 245. Surface water supply of upper Mississippi and Hudson Bay basins, 1907–8, by A. H. Horton, E. F. Chandler, and R. H. Bolster. 133 pp., 5 pls., 1 text figure.

Water-Supply Paper 247. Surface water supply of lower Mississippi basin, 1907–8, by A. B. Freeman, W. A. Lamb, and R. H. Bolster. 124 pp., 2 pls., 2 text figures.

Water-Supply Paper 248. Surface water supply of western Gulf of Mexico, 1907–8, by A. B. Freeman and R. H. Bolster. 171 pp., 4 pls., 1 text figure.

Water-Supply Paper 249. Surface water supply of Colorado River basin, 1907–8, by A. B. Freeman and R. H. Bolster. 206 pp., 10 pls.

Water-Supply Paper 250. Surface water supply of the Great Basin, 1907–8, by E. C. La Rue and F. F. Henshaw. 151 pp., 6 pls., 1 text figure.

Water-Supply Paper 252. Surface water supply of Columbia River and the north Pacific coast, 1907–8, by J. C. Stevens and F. F. Henshaw. 1910. 418 pp., 9 pls.

Water-Supply Papers 241 to 252 contain the results of stream measurements in the United States during the calendar years 1907 and 1908, continuing the Survey's series of reports on stream gagings. These papers give gage-height records, results of current-meter measurements, rating tables, and estimates of monthly discharges at stations maintained on many streams.

Mineral resources of the United States, calendar year 1908. Part I. Metallic products; 816 pp., 2 pls., 3 text figures. Part II. Nonmetallic products; 899 pp., 1 pl., 6 text figures.

Statistics of production of mineral substances in the United States, including accounts of the chief features of mining progress and comparisons of past and present production and conditions. A consolidation of 48 advance chapters each reporting on a separate mining industry.

Geologic folio 167. Description and maps of the Trenton quadrangle, comprising 912 square miles in New Jersey and Pennsylvania, by F. Bascom, N. H. Darton, H. B. Kümmel, W. B. Clark, B. L. Miller, and R. D. Salisbury. Survey made in cooperation with the States of New Jersey and Pennsylvania. 24 folio pages of text (with 3 text figures), 2 maps, 1 structure-section sheet, 2 columnar sections, and a table of formations. Published also in octavo form: 185 pages of text, with 3 figures; maps in pocket.

Geologic folio 168. Description and maps of the Jamestown, Eckelson, and Tower quadrangles, comprising 2,460 square miles in South Dakota, by Daniel E. Willard. 10 folio pages of text (including 6 text figures) and 9 maps showing topography, geology, and artesian-water prospects. Published also in octavo form: 76 pages of text, with 6 figures; maps in pocket.

Geologic folio 169. Description and maps of the Watkins Glen and Catatonk quadrangles, comprising 885 square miles in New York, by Henry S. Williams, Ralph S. Tarr, and Edward M. Kindle. Survey made in cooperation with the State of New York. 33 folio pages of text (including 13 text figures), 6 maps, and 2 sheets of half-tone illustrations. Published also in octavo form: 242 pages of text, with 37 figures; maps in pocket.

Geologic folio 170. Description and maps of the Mercersburg and Chambersburg quadrangles, consisting of 458 square miles in Pennsylvania, by George W. Stose. Survey made in cooperation with the State of Pennsylvania. 19 folio pages of text (including 5 text figures), 4 maps, 2 structure-section sheets, 1 columnar section, and 1 sheet of half-tone illustrations. Published also in octavo form: 144 pages of text, 18 figures; maps in pocket.

Geologic folio 171. Description and maps of the Engineer Mountain quadrangle, comprising 236 square miles in Colorado, by Whitman Cross and Allen D. Hole. 13 folio pages of text (including index map), 1 topographic, 1 geologic, and 1 structure-section map, 1 columnar section, and 2 sheets of half-tone illustrations. Published also in octavo form: 101 pages of text, with index map; 13 plates; maps and structure and columnar sections in pocket.

Geologic folio 173. Description and maps of the Laramie and Sherman quadrangles, comprising 1,797 square miles in Wyoming, by N. H. Darton, Eliot Blackwelder, and C. E. Siebenthal. 17 folio pages of text (including 3 text figures), 2 topographic and 2 geologic maps, 2 sheets showing structure sections, 2 columnar sections, 1 map showing artesian-water prospects, and 1 sheet of half-tone illustrations. Published also in octavo form: 128 pages of text, with 3 figures; 8 plates; maps and sheets of sections in pocket.

Topographic maps as follows:

Acworth, Ga.
Alliance, Ohio.
Antietam, Md.-Va.-W. Va.
Atlanta, Tex.-Ark.-La.
Bedford, Pa.
Bellefonte, Pa.
Bloomington, Ind.
Breckenridge special, Colo.
Carbondale, Cal.
Carson Sink, Nev.
Castle, Cal.
Central City, Ky.
Clay, Cal.
Clay, W. Va.
Coharie, N. C.
Colorado Springs, Colo.
Columbiana, Ohio-Pa.
Conesville, Ohio.
Continental, Ohio.
Cooperstown, N. Y.
Cosumnes, Cal.
Defiance, Ohio.
Ducktown special, Tenn.
Earlington, Ky.
Elk Grove, Cal.
Elkins, W. Va.
Eugene, Oreg.
Fairbanks, Alaska.
Fairfield, Pa.
Fish Springs, Utah.
Florin, Cal.
Franklin, Tenn.
Gaffney, N. C.-S. C.
Gallina, N. Mex.
Garden Valley, Idaho.
Gassaway, W. Va.
Glendive, Mont.-N. Dak.
Goose Creek, Cal.
Grand Hogback, Colo.
Granville, Ohio.
Gros Ventre, Wyo.
Hartford, Ky.
Herrin, Ill.
Higdon, Mo.
Howell, Mich.
Isleton, Cal.
Jensen, Utah-Colo.
Lancaster, Ohio.
Linden, Tex.
Lisbon, Ohio.
Livermore, Colo.
Logan, Ohio.
Luther, Okla.
McAlester, Okla.
McClure, Ohio.
Madisonville, Ky.
Midkiff, W. Va.
Milford, Mich.
Milo, Iowa.
Montgomery, W. Va.
Mound, La.
Newark, Ohio.
New Boston, Tex.
Oconomowoc, Wis.
Pawhuska, Okla.
Perkins, Okla.
Pleasant Grove, Cal.
Providence, Ky.
Rangely, Colo.
Ray, Ariz.
Rockford, Minn.
Rock Springs, Wyo.
Roosevelt, Ariz.
Sapphire, Mont.
Silver City, N. Mex.
Sparta, Wis.
Stony Creek, N. Y.
Strawberry Valley, Utah.
Thornville, Ohio.
Thurston, Ohio.
Tuskahoma, Okla.
Waterloo, Wis.
Watertown, N. Y.
Wayne, W. Va.
West Frankfort, Ill.
White River, Colo.
Whitesville, Ky.
Winding Stair, Okla.
Winnepesaukee, N. H.
York, Pa.
Yosemite Park, administrative map.
Zanesville, Ohio.
Zillah, Wash.

FIELD WORK BY THE DIRECTOR.

During the year the Director visited topographic parties in California and engaged in geologic work in the high Sierra. In company with the Secretary of the Interior he visited the Yosemite Valley and other sections of the west slope of the Sierra for the study of departmental problems. He took part in field conferences with administrative officers, geologists, and engineers of the Survey and of the Reclamation and Forest services and attended the irrigation congress at Spokane, the mining congress at Goldfield, and the Minnesota conservation convention at St. Paul.

GEOLOGIC BRANCH.

ADMINISTRATION.

The geologic branch consists of four divisions—(1) geology and paleontology, C. W. Hayes in charge; (2) Alaskan mineral resources, A. H. Brooks in charge; (3) mining and mineral resources, E. W. Parker in charge; and (4) chemical and physical research, G. F. Becker in charge.

The chief geologist, C. W. Hayes, has general supervision of the work of the geologic branch, and the divisions cooperate in the several lines of work. Members of one division are employed in the work of another whenever it seems desirable, and such transfer is easily effected. The statistical reports of the division of mineral resources are for the most part prepared by geologists from the division of geology who are detailed to the work for a portion of the year.

PUBLICATIONS.

The publications of the year prepared in the geologic branch included 6 geologic folios, 4 professional papers, 29 bulletins, and the annual volume on mineral resources. Besides these a large number of papers were, with the permission of the Director, published in scientific journals and in the transactions of scientific societies, and some original matter obtained incidentally during the course of the work and not appropriate for official reports has also been made the subject of unofficial publications. Such publications are ordinarily restatements of results in a more technical form, and are usually prepared by members of the Survey without compensation.

The progress of geologic mapping during the year, as represented in the publications of the Survey, is shown on Plate I.

DIVISION OF GEOLOGY AND PALEONTOLOGY.

ORGANIZATION.

The scientific force at the beginning of the year consisted of 51 geologists, 50 assistant geologists, and 29 junior geologists. During the year there were 10 resignations and 3 appointments, resulting in a net loss of 7, or a total of 123 at the end of the year. Of the total number 76 were continuously employed, 24 carried on the per diem roll gave only a portion of their time to Survey work, and 30 were not employed during the year. In addition to the regular force 35 field assistants were employed for a portion of the year.

The work of the division is organized under a number of sections, as follows:

Areal and structural geology, Arthur Keith in charge.
Paleontology and stratigraphic geology, T. W. Stanton in charge.
Economic geology, metalliferous ores, Waldemar Lindgren in charge.
Economic geology, fuels, M. R. Campbell in charge.
Land classification, A. C. Veatch in charge.

The section chiefs have direct supervision, both in the field and in the office, of the work in their sections and are directly responsible for maintaining a high scientific standard.

FIELD WORK BY THE CHIEF GEOLOGIST.

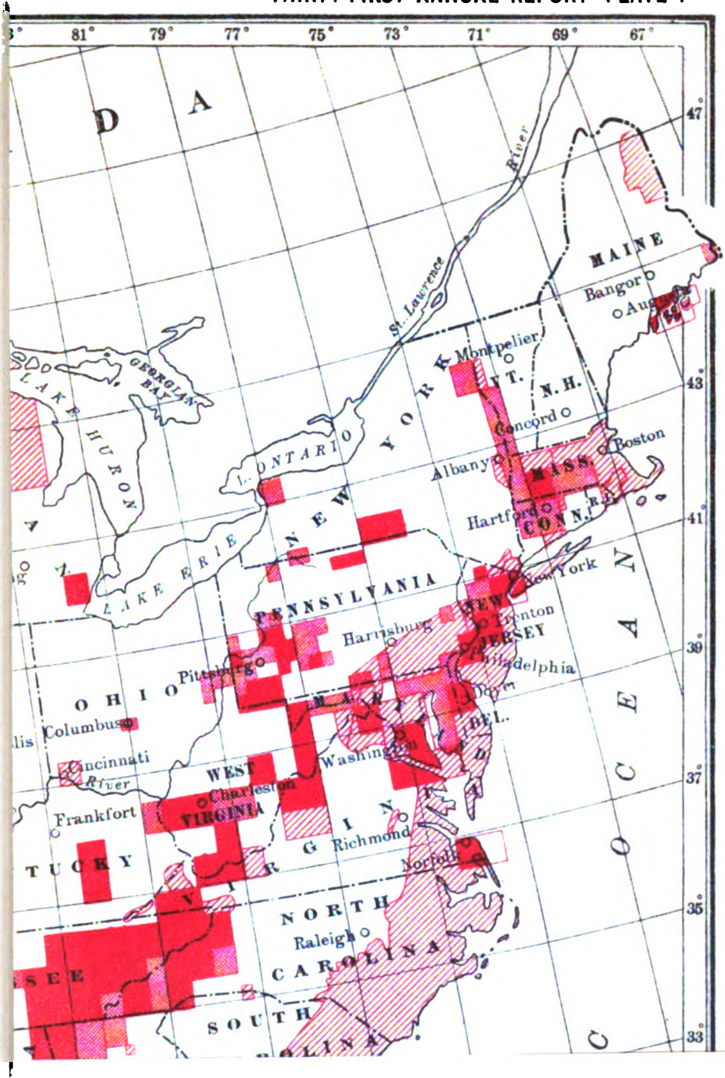
During July, 1909, the chief geologist completed an inspection of work in progress in the Oklahoma oil fields. He then visited all the producing oil fields in California in company with Ralph Arnold, who had been carrying on investigations in these fields for several years. This inspection was made for the purpose of determining where and by what methods the oil investigations could be most advantageously extended. In September he visited the parties in Utah, Idaho, and Wyoming engaged in the investigation of phosphate deposits and the classification of public lands containing these deposits. Questions of special importance in connection with the classification and valuation of these lands and the application to them of the mining law required consideration in the field with the geologists engaged in making the surveys and the section chief in charge of the work. On the completion of this inspection a party working in Oklahoma was visited and also some localities in Louisiana where oil, gas, rock salt, and sulphur had been recently discovered under conditions throwing much light on the general scientific and economic problems of oil and gas accumulation in the Gulf Coastal Plain.

The chief geologist was out of the United States for two months during the year on leave without pay.

GEOLOGIC WORK IN EASTERN AND SOUTHEASTERN STATES.

New England.—Cooperative geologic work in Maine was continued during the year, $1,200 being allotted by the State Survey and $1,300 by the Federal Survey.

The preparation of the Eastport folio (Me.) was carried nearly to completion by E. S. Bastin and C. L. Breger. It is thought that the text and maps will be submitted for publication before the close of the year 1910. In connection with the preparation of this folio a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Augusta
St. Lawrence River
Montpelier
VT.
N. H.
Concord
Boston
MASS.
R. I.
Hartford
CONN.
Albany
NEW YORK
L. ONTARIO
GEORGIAN BAY
LAKE HURON
LAKE ERIE
New York
PENNSYLVANIA
Harrisburg
Trenton
NEW JERSEY
Philadelphia
Dover
DEL.
Pittsburgo
OHIO
Columbus
Cincinnati
River
Frankfort
WEST VIRGINIA
Charleston
Washington
MARYLAND
VIRGINIA
Richmond
Norfolk
NORTH CAROLINA
Raleigh
SOUTH CAROLINA
OCEAN
TUCKY
SEE

special study of the Silurian faunas was made by Mr. Breger. The late Silurian formations in the Eastport region are remarkably well developed, and Mr. Breger's report is expected to be of considerable value to students of the Silurian.

The report on the fossil fauna of the Chapman sandstone of Aroostook County, Me., by H. S. Williams and C. L. Breger, was completed and submitted for publication. This report will be an important contribution to the problem of determining the boundaries between the Silurian and Devonian.

A report on the pegmatite deposits of Maine, by E. S. Bastin, was completed.

Work in the preparation of the Mount Desert folio (Me.) was continued by C. W. Brown.

A study of the ore deposits of Maine and New Hampshire was made by W. H. Emmons, and the report is now in press (Bulletin 432).

Field work for a supplemental report on the granites of New Hampshire was completed by T. N. Dale, and this report was published in Bulletin 430.

The geologic and economic survey of the Monadnock quadrangle, in southwestern New Hampshire, was well advanced by B. K. Emerson.

Considerable progress was made by T. N. Dale in the preparation of the Ticonderoga folio (Vt.–N. Y.), and Mr. Dale has completed the microscopic study of the rocks in the Brandon quadrangle (Vt.).

An extensive reconnaissance was made by Arthur Keith in the valley of western Vermont and adjoining parts of the Green Mountains to determine the sequence and structure of the Cambrian and Ordovician formations. The divisibility of the great limestone mass of the valley from Canada to Massachusetts was made clear, as well as the general existence of overthrust faults along the east side and the center of the valley.

Additional field work was done by T. N. Dale on the granites of Massachusetts, forty quarries being visited. The results of this work will be published as a supplemental note on the granites of Massachusetts.

The bulletin on the granites of Connecticut, by T. N. Dale and H. E. Gregory, was completed and has been submitted for publication.

Atlantic and Gulf coastal plains.—In cooperation with the state geological surveys the studies of the Atlantic and Gulf coastal plains were continued throughout the year. The work was carried on under the general supervision of T. W. Vaughan, who personally inspected various critical localities. W. B. Clark continued in immediate charge of the coastal-plain district extending from Massachusetts to and including North Carolina, and Mr. Vaughan had immediate charge of the remainder of the coastal-plain area.

During the year the field work for the report on the underground water resources of Delaware, Maryland, and the District of Columbia, which is being prepared in cooperation with the State Survey of Maryland, was completed by G. C. Matson, representing the Federal Survey, and E. H. Sapp, representing the Maryland Survey. The manuscript for this report is nearly finished and will soon be ready for publication.

Progress was made by W. B. Clark, assisted by A. D. Bibbins and H. P. Little, in the preparation of the folios covering the Choptank and Tolchester quadrangles of Maryland.

The report on the geology and underground waters of the coastal plain of Virginia, by W. B. Clark, B. L. Miller, E. W. Berry, and Samuel Sanford, has been completed and submitted. Special work on the formations of the Potomac group was done by A. D. Bibbins and H. P. Little.

The report on the geology and underground waters of the coastal plain of North Carolina, by W. B. Clark, L. W. Stephenson, B. L. Miller, and B. L. Johnson, has been completed and is now going through the press as a bulletin of the North Carolina Geological Survey.

Progress was made in the preparation of the report on the coastal plain of South Carolina, which is in charge of Earle Sloan, state geologist of South Carolina.

The report on the coastal plain of Georgia is well advanced. The manuscript covering the stratigraphy of the Cretaceous area has been completed by L. W. Stephenson, the discussion of the stratigraphy of the Tertiary area has been begun by Otto Veatch, and considerable progress has been made in the chapter on the underground water resources.

Work on the coastal plain of Alabama is being carried on by L. W. Stephenson and E. W. Berry. The study of the Cretaceous formations of this State was extended westward into Mississippi, where valuable geologic data were obtained.

Reports on the geology and underground water resources of northeastern Texas, by C. H. Gordon, and on the geology and underground water resources of the coastal plain of Texas east of Brazos River, by A. Deussen, have been transmitted for publication. Mr. Deussen is now engaged in the preparation of a report on the geology and underground water resources of the coastal plain of Texas between Brazos and Guadalupe rivers; in this work he is giving considerable attention to the clays and lignites of the region.

Studies of the oil and gas resources of northwestern Louisiana and eastern Texas were continued by G. D. Harris, who has given to the Survey much valuable information collected by him in the past.

During the year a detailed survey of Terrebonne Parish, La., with reference to its oil and gas resources, was made and the report is nearly completed. Mr. Harris, assisted by C. J. Maury, is at present engaged in a study of coast shells and well material of the Mississippi embayment. Owing to the nature of the coastal-plain deposits great difficulty is experienced in identifying geologic horizons, and it is expected that this study will be of considerable assistance.

In the study of the fossils, which play an important part in deciphering the stratigraphy of the Coastal Plain, valuable assistance has been rendered by W. B. Clark, B. L. Miller, E. W. Berry, and Miss Julia A. Gardner.

Northern Appalachian region.—In the coal fields of Pennsylvania the geologic work of the year has been confined mainly to the completion of the examination of a number of quadrangles in cooperation with the State. Until May 1 the work was in charge of G. H. Ashley, who resigned to become state geologist of Tennessee. Since that time it has been in charge of David White. Work has been carried on by Charles Butts, M. J. Munn, E. W. Shaw, W. C. Phalen, and E. F. Lines. In several of the quadrangles the studies have been restricted chiefly to the collection of supplementary data needed for bringing up to date the economic reports and maps.

Some revisionary work on the surficial geology of the Foxburg quadrangle (Pa.) was done by E. W. Shaw, and a bulletin on the coal, oil, and gas of that quadrangle was prepared by Mr. Shaw and M. J. Munn.

A reexamination of certain features in the Hollidaysburg quadrangle (Pa.) was made by Charles Butts, whose manuscript for the folio covering this quadrangle is nearly finished. Special studies of the stratigraphy of the coals in the Barnesboro and Patton quadrangles (Pa.) were also made by Mr. Butts in connection with sampling the coals for chemical analysis. The results will be embodied in the folio treating of the two quadrangles.

The folio covering the Burgettstown and Carnegie quadrangles (Pa.) was completed and submitted for publication by E. W. Shaw, who also made an examination of the surficial geology of the Newcastle quadrangle (Pa.) and brought the information on the economic resources of that quadrangle up to date. The report on the survey of the Newcastle quadrangle, which was made by F. W. De Wolf, has been greatly delayed by Mr. De Wolf's duties as acting state geologist of Illinois.

The manuscript for the Claysville folio (Pa.) was completed and submitted by M. J. Munn.

Economic reports on the Punxsutawney, Clearfield, and Houtzdale quadrangles (Pa.) have been published and work in the preparation of the folios and bulletins has been begun by G. H. Ashley. This work, however, is likely to be delayed because of Mr. Ashley's new duties as state geologist of Tennessee.

During the year a number of oil and gas areas in the northern Appalachian region were examined by M. J. Munn, for the purpose of incorporating the results in a general summary report on the oil and gas fields of the Appalachian region.

A paper on the sand and gravel resources of the Pittsburg district was prepared and submitted by E. W. Shaw (in Bulletin 430).

The geologic survey of the Fairfield quadrangle (Pa.) was completed by G. W. Stose, and considerable work was done in the preparation of the text for the folio on the Fairfield and Gettysburg quadrangles. This folio will form one of the series of folios covering the northern Appalachian region. Of these the Mercersburg-Chambersburg folio (Pa.) has already been published, the Pawpaw-Hancock folio (W. Va.-Md.-Pa.) was completed during the year, and the Accident-Grantsville folio (Md.-W. Va.-Pa.), on the most western quadrangles of the series, has been published.

An examination of the iron ores near Dillsburg, Pa., was made by A. C. Spencer and E. C. Harder. A brief report on this work will be found in Bulletin 430.

Considerable progress was made by Florence Bascom in the geologic mapping of the Reading, Boyertown, Honeybrook, and Phoenixville quadrangles (Pa.). During a part of the time Miss Bascom was assisted by E. T. Wherry.

A study of the stratigraphy and paleontology of the western part of the Appalachian Valley in Maryland, Pennsylvania, and New York was continued by Edwin Kirk under the direction of E. O. Ulrich.

In cooperation with the State Geological Survey of New Jersey the maps and text for the Raritan folio were completed and submitted. This folio was prepared by W. S. Bayley, H. B. Kümmel, and R. D. Salisbury.

Southern Appalachian region.—In Alabama the geologic work on the southwestern half of the Cahaba coal field was completed by Charles Butts and the economic report thereon, now in hand, is companion to that on the northern half of the field, already published (in Bulletin 316). A small area in the southeast corner of the Brookwood quadrangle remains to be examined. The geologic mapping of the Bessemer special quadrangle has been nearly finished by Mr. Butts, who has also completed the final work on that portion (comprising about one-third) of the Montevallo special quadrangle which is included in the Cahaba coal field. The text for the folio on the Birmingham quadrangle is practically finished.

In the Ellijay quadrangle (Ga.) Arthur Keith made special studies of the faulted structure of the rocks just southeast of the marble belt, and W. C. Phalen completed the report on the economic geology of the quadrangle, which is to form part of the Ellijay folio.

The examination of the metamorphic area of the Dalton quadrangle (Ga.) was finished by Mr. Phalen, who also accomplished the areal mapping of approximately one-third of the Dahlonega quadrangle.

In cooperation with the state geological surveys of Kentucky and Tennessee the oil fields of those States have been made the subject of a preliminary examination by M. J. Munn, who has in preparation two reports, one relating to each State. In the course of this work a large number of oil and gas fields in northern Tennessee, eastern Kentucky, southeastern Ohio, and adjacent portions of West Virginia have been examined and samples of oil and salt water have been collected from the different oil sands for the purpose of making analyses. Detailed studies have been made of the Campton oil field of Wolfe County, Ky., and of the Steubenville, Cooper, Oil Valley, and Johnson Fork fields of Wayne County, Ky. The field work for these reports is nearly finished and the maps are well advanced.

In November, 1909, S. F. Emmons made a visit to the Ducktown district of Tennessee, and as a result a special study of the geology and ore deposits of this district has been commenced by W. H. Emmons and is now in progress.

The preparation of the final maps and text for the folio on the Woodbury quadrangle (Tenn.) was well advanced by E. O. Ulrich, and areal mapping for the Pikeville special quadrangle was begun by W. C. Phalen.

Additional work on the surficial geology of the Kenova quadrangle (W. Va.-Ohio-Ky.) was done by E. W. Shaw and W. C. Phalen, and the manuscript for the Kenova folio was carried nearly to completion by Mr. Phalen.

In connection with a comprehensive sampling of the coals of the New River and Pocahontas coal fields, for chemical analyses by the technologic branch, David White made a study of the stratigraphic identification and correlation of the coals sampled.

Special studies in the Kings Mountain and Gaffney quadrangles (N. C.-S. C.) were continued by Arthur Keith and D. B. Sterrett. A brief reconnaissance around those quadrangles, in the Gastonia, Hickory, and Statesville (N. C.) and Spartansburg (S. C.) quadrangles, was made by Mr. Keith, who also completed about two-thirds of the mapping of the Cowee quadrangle (N. C.).

A report on the mica deposits of North Carolina was prepared by D. B. Sterrett (in Bulletin 430).

By request, a special examination of the Dan River coal field in Stokes and Rockingham counties, N. C., was made by R. W. Stone, under the direction of M. R. Campbell. A brief report on this investigation has been prepared.

GEOLOGIC WORK IN CENTRAL STATES EAST OF 97°.

In Illinois geologic investigations have been continued in cooperation with the State Geological Survey. The greater part of the expense has been borne by the State Survey, but the results of the studies are available to either Survey. On the part of the Federal Survey, E. W. Shaw has geologically mapped the Murphysboro quadrangle, reviewed the surficial geology of the Herrin and West Frankfort quadrangles, and commenced the preparation of the Murphysboro folio text. An economic report describing the coals of the Murphysboro quadrangle has been placed in the hands of the state geologist, who has forwarded to the Federal Survey a full geologic report, by J. A. Udden, on the Belleville and Breese quadrangles, together with manuscript material, by T. E. Savage, for a bulletin on the geology of the Springfield quadrangle. Mr. Shaw is now engaged in a review of the surficial geology of the Galatia quadrangle. A special field examination of obscure Mississippian and Pennsylvanian sections along the borders of the Murphysboro quadrangle was made by E. W. Shaw, Stuart Weller, and David White.

A study of the stratigraphy of the fire clays of western Illinois was made by E. F. Lines, who thoroughly sampled the clays for chemical analyses and submitted to the State Survey a report covering this work.

The survey of the East Cincinnati and West Cincinnati quadrangles (Ohio-Ky.) was completed by N. M. Fenneman, R. S. Bassler, and J. M. Nickles, under the direction of E. O. Ulrich. The preparation of the folio texts is well in hand.

A report on the Ordovician rocks of the Cincinnati uplift is being prepared by E. O. Ulrich and is nearly ready for publication.

The monograph on the Pleistocene formations of Indiana and Michigan has been finally revised and completed by Frank Leverett and F. B. Taylor. This monograph includes not only a report of the work carried on under the auspices of the Survey by Mr. Leverett and Mr. Taylor, but also the results of several seasons' work by Mr. Taylor partly at private expense and partly under the auspices of the Canadian Survey. It embraces the glacial and lake history not only of Michigan and Indiana but also of neighboring portions of Canada whose history is closely connected with that of those States.

In cooperation with the State Geological Survey of Michigan special studies of the glacial deposits and shores of the old lakes in the Northern Peninsula were made by Frank Leverett. The State Survey was represented by L. H. Wood.

Under the direction of C. R. Van Hise the investigations of the physical and chemical properties of the ores and iron formations of the Lake Superior region were continued by C. K. Leith and W. J. Mead. The results of these investigations have been incorporated in the monograph on the Lake Superior region, which is now in the hands of the editor. Mr. Leith carried on considerable correspondence with the mining companies, in order to procure the latest statistics for this monograph, for which he also obtained additional data regarding geologic boundaries.

A special study was made by Frank Leverett of the pre-Wisconsin drift sheets in southeastern Minnesota, eastern Iowa, and northwestern Illinois. The object was to determine the amount of weathering of the Illinoian drift of the Labrador ice field and the Iowan drift of the Keewatin field. As a result of this study the Iowan drift is tentatively correlated with the Illinoian drift.

Detailed study and areal mapping of the Quaternary deposits of southeastern Wisconsin, together with the mapping of the underlying Paleozoic and pre-Cambrian rocks, were continued by W. C. Alden. The work during the year was done chiefly in Fond du Lac, Dodge, Columbia, Green Lake, Marquette, and Winnebago counties and nearly completed the survey of the area between latitude 42° 30′ and 44° north and east of longitude 90° west. The manuscript for a professional paper covering this area is well advanced. As in previous years, this work was done under the supervision of T. C. Chamberlin.

In cooperation with the state authorities a systematic examination of the coal fields of Missouri was commenced in June by Henry Hinds, assisted by C. T. Lupton.

Work in the preparation of the geologic folio covering the Wyandotte quadrangle (Mo.-Okla.) was well advanced by C. E. Siebenthal. Mr. Siebenthal also made a special examination of the deeper ore deposits of the Joplin district of Missouri.

In Arkansas A. H. Purdue and H. D. Miser mapped the area geology of the southwestern part of the Harrison quadrangle, revised the boundaries in the southwestern part of the Eureka Springs quadrangle, and completed the areal mapping for the Hot Springs special quadrangle. In the office good progress was made in the preparation of the reports on these quadrangles.

The fauna of the basal part of the Fayetteville shale of Arkansas was made the subject of special study by G. H. Girty.

GEOLOGIC WORK IN WESTERN PUBLIC-LAND STATES AND TERRITORIES.

Central States west of 97°.—Some additional studies were made by G. H. Girty of the Carboniferous rocks of Kansas, and a short paleobotanic examination of the Chase and Sumner groups of Kansas was made by David White, for the purpose of procuring fossil-plant evidence bearing on the age of these beds. The fossils obtained are confirmatory of the Permian age of the strata. The southern extension of the search revealed similar Permian evidence at several points in the "Red Beds" of Oklahoma and in the Wichita formation of northern Texas.

A detailed survey of the Pawhuska quadrangle (Okla.) was made by C. D. Smith. The purpose of this work was to determine if possible the relation of the oil and gas accumulations to the structure.

The preparation of the maps and text for the Llano-Burnet folio, covering two quadrangles in central Texas, was practically completed. In the survey of these quadrangles, the geology of which is extremely complicated, A. C. Spencer, Sidney Paige, W. S. Bayley, F. H. Kay, and E. O. Ulrich have participated for longer or shorter periods. A bulletin on the economic resources of this mineral region and a report on the pre-Cambrian geology of the iron ores (in Bulletin 430) were prepared by Sidney Paige.

A detailed study of the quicksilver deposits of the Terlingua region, in Texas, was begun by H. D. McCaskey. The mapping of the western portion of the area covered by the Terlingua special map, which contains all the Lower Cretaceous deposits that have so far proved productive, was completed. During the present season the eastern half of the area will be mapped and a study made of the Upper Cretaceous deposits and the igneous rocks.

The folio covering the Van Horn quadrangle (Tex.) was completed and submitted by G. B. Richardson.

Rocky Mountain region.—The work of classifying and placing valuations on the coal lands of the Rocky Mountain region and Pacific coast States was continued throughout the year. As in previous years, this work was in charge of M. R. Campbell, who supervised all the geologic work of the Survey relating to coal, oil, and gas except in Alaska. During the summer and fall he visited the various parties in the field and gave personal direction to the conduct of the work. During the winter the results of the field examinations were compiled in the office, under Mr. Campbell's supervision. This work involved the preparation of geologic maps, of township plats showing the classification and valuation of the coal lands examined, and of special preliminary reports on the geology and economic resources of the various regions. The following is a brief statement of the work accomplished and of the men directly engaged in its prosecution:

Eastern part of Bull Mountains, Mont. Topographic and geologic surveys for coal-land valuation completed by C. T. Lupton and Henry Hinds, under the supervision of R. W. Stone. Report well in hand.

Part of Milk River coal field, Mont., which lies to the east of the Bearpaw Mountains. Examination by L. J. Pepperberg. Land classified and report partly completed when Mr. Pepperberg resigned to engage in private work.

Hound Creek district of Great Falls coal field, Mont. Mapped and studied by V. H. Barnett, under the supervision of W. R. Calvert. Land classified and brief report submitted for publication.

Upper Powder River coal field, Wyo. Topographic and geologic map of seven townships completed by C. H. Wegemann and R. W. Howell, under the supervision of R. W. Stone. Map and brief report submitted for publication.

Salt Creek oil field, Natrona County, Wyo. Ten townships surveyed by C. H. Wegemann and R. W. Howell, under the supervision of R. W. Stone. Map and report submitted for publication.

Coal field at Aladdin, Wyo. Examined by R. W. Stone.

Wind River coal and oil field, Wyo. Examined by E. G. Woodruff. Lands classified and preliminary report submitted for publication.

Lander oil field, Wyo. Examined by E. G. Woodruff. Lands classified and report submitted for publication.

Rock Springs coal field, Wyo. Examined by A. R. Schultz. Survey completed, preliminary reports published (in Bulletins 341 and 381), and final report well advanced.

Little Snake River coal field, Wyo. Lands classified and brief report prepared by M. W. Ball and Eugene Stebinger (in Bulletin 381).

Black Hills coal field, Wyo. Examined by R. W. Stone.

Standing Rock and Cheyenne Indian reservations, N. Dak. and S. Dak. Examination undertaken at the request of the Bureau of Indian Affairs. Completed by M. A. Pishel, V. H. Barnett, and A. L. Beekly, under the supervision of W. R. Calvert. Reports on valuation have been sent to the Bureau of Indian Affairs. More detailed geologic reports are in course of preparation.

Williams Fork district of Yampa coal field, Colo. Examined by J. A. Davis. Lands classified and report submitted.

Part of Grand Hogback coal field of Colorado between Newcastle and Coal Basin. Examined by A. L. Beekly. Lands classified and report nearly finished.

Anthracite–Crested Butte coal field, Colo. Examined by W. T. Lee. Lands classified and report completed.

South Park and Canon City coal fields, Colo. Lands classified by C. W. Washburne and preliminary reports submitted (in Bulletin 381).

Book Cliffs coal field, Colo. Lands classified by G. B. Richardson.

Trinidad coal field, Colo. Report completed and submitted by G. B. Richardson (in Bulletin 381).

Florence oil field, Colo. Detailed report completed by C. W. Washburne.

Southwestern Colorado. Oil prospects near Dolores and San Miguel rivers examined by C. W. Washburne.

San Juan coal region, N. Mex. and Colo. Detailed examination of certain townships near Monero, N. Mex., by J. H. Gardner. General geologic reconnaissance over southeastern part of field for the purpose of correlating the geologic formations with other formations in this and adjacent fields.

Coal field north of Greeley, Colo. Examined by E. G. Woodruff.

Oil prospects near Mount Pleasant, Utah. Examined by E. G. Woodruff.

Southern Utah coal field. Lands classified by G. B. Richardson.

Coos Bay and Eckley coal fields, Oreg. Examined by J. S. Diller, assisted by M. A. Pishel. Lands classified and preliminary geologic report submitted for publication.

Ontario gas field, Oreg. Examined by C. W. Washburne. Report in hand.

Astoria gas and oil field, Oreg. Examination now in progress by C. W. Washburne.

State of Washington. Practically all the coal fields in this State examined by E. E. Smith, for the purpose of studying the character of the coal and collecting samples for chemical analysis. A report on this subject is nearly ready for publication. Mr. Smith also made a reconnaissance of the Carlton Pass coal field of Washington, at the request of the Forest Service, for the purpose of classifying the coal lands of that area.

Considerable progress in the mapping of the Deadwood and Rapid quadrangles (S. Dak.) was made by Albert Johannsen. Until his resignation in the spring, to accept a professorship in the University of Chicago, Mr. Johannsen also had charge of the petrographic reference collection of the Survey.

A brief examination of Carboniferous sections in the Little Belt Mountains region of Montana was made by W. R. Calvert and G. H. Girty. Problems in Cretaceous stratigraphy in the Crazy Mountains, Montana, were made the subject of a short field conference by several geologists.

The maps and text for the Philipsburg folio (Mont.) were practically completed by F. C. Calkins. The report on the economic geology of this area, which is finished, is by W. H. Emmons.

At the request of the Department of Justice, F. C. Schrader was detailed to examine certain mining prospects in the northern part of Idaho and adjacent parts of Montana. Regarding this investigation Mr. Schrader testified before the grand jury in Spokane, and later in the year prepared a preliminary report on the matter for the use of the post-office inspectors and the Department of Justice.

A study of the copper deposits near Montpelier, Idaho, was made by H. S. Gale, and a report was completed and submitted for publication (in Bulletin 430).

At the request of the Forest Service, mining claims comprising more than 2,300 acres of timber and mineral land in the Clearwater National Forest, Idaho, were examined by F. C. Schrader, and subsequently reports thereon were submitted. Mr. Schrader's observations during this examination also led him to prepare a paper on the occurrence of monazite in northern Idaho, with generalizations on the occurrence of monazite elsewhere in the State (in Bulletin 430).

Some of the areas in Idaho, Utah, and Wyoming which had been withdrawn by the Secretary of the Interior because of the probable existence of phosphate rock were examined by two geologic parties. In northeastern Utah Eliot Blackwelder examined and classified the phosphate withdrawals from Croyden and Devils Slide northward to Huntsville and Eden. A larger party, consisting of H. S. Gale, in charge, R. W. Richards, C. L. Breger, and G. H. Girty, examined and classified the phosphate withdrawals about Montpelier, Idaho, and along the east side of Bear Lake Valley from Georgetown Canyon, Idaho, to Laketown, Utah. On the east this work was extended so as to include the Sublette Mountains and Beckwith Hills in Wyoming and the Crawford Range along the Wyoming-Utah border. Phosphate deposits in the region along Twelvemile Creek, southwest of Woodruff, Utah, were also examined. In this work W. H. Waggaman, of the Department of Agriculture, rendered valuable assistance as chemist, analyzing in the field about 340 samples of phosphate rock. Reports on these phosphate deposits have been completed and submitted for publication (in Bulletin 430).

A brief report (see Bulletin 430) on the salt resources of the Wyoming-Idaho border, embracing Stump Creek, Tygee Creek, and Crow Creek in Bannock County, Idaho, and Salt Creek in Uinta County, Wyo., was prepared by C. L. Breger.

An examination of possible future oil fields in the Virgin River region, Utah, and in the Bighorn Basin, Wyoming, was made by Robert Anderson, who classified the lands in those regions.

A study of the graphite deposits near Brigham, Utah, was made by H. S. Gale, and a report was prepared and submitted for publication (in Bulletin 430).

In the survey of phosphate lands in northern Utah Eliot Blackwelder acquired much new information relating to the stratigraphy and structure of the Wasatch Mountains. Reports and scientific papers embodying these results have been prepared by Mr. Blackwelder.

The study of the areal geology and mines of the Frisco district, Utah, was completed by B. S. Butler and considerable progress was made in the preparation of the report.

Geologic mapping in the San Juan region of Colorado was continued by Whitman Cross, assisted by E. S. Larsen and for a short time by J. H. Gardner. During the season the northeastern portion of the Ignacio quadrangle was mapped and considerable progress was made in the mapping of the San Cristobal quadrangle, which was started the previous year and will be finished during the coming season. The San Juan is an extremely complex volcanic district, and a general report on the volcanic geology, covering the work of several years, is in course of preparation by Mr. Cross. In this study Mr. Larsen, who has since been placed in charge of the petrographic reference collection of the Survey, has continuously rendered assistance. Considerable progress was made by Mr. Cross and W. W. Atwood in the study of the Quaternary geology and physiographic history of the San Juan Mountains. During the winter Mr. Cross prepared a paper on the natural classification of igneous rocks, which was read before the Geological Society of London in June.

Late in the year an examination of certain areas tributary to the Rio Grande in the San Juan Mountains of Colorado was made by E. S. Larsen, at the request of the Forest Service.

In response to a petition addressed to the Secretary of the Interior and signed by nearly every person having important interests in the district, a study of the Breckenridge district of Colorado has been made by F. L. Ransome, assisted by E. S. Bastin. The report will be ready for publication by October. A preliminary inspection of the field was made by S. F. Emmons.

A general reconnaissance of the tungsten field in Boulder County, Colo., to obtain information for use in the contemplated report on the tungsten deposits of the United States, was made by F. L. Hess.

The areal geology in the vicinity of Idaho Springs, Colo., was mapped by E. S. Bastin and J. M. Hill, who also made considerable progress in the study of the economic geology of the Central City quadrangle (Colo.).

Special studies of stratigraphic problems in the Trinidad coal field of Colorado were made by F. H. Knowlton and A. C. Peale.

A paleobotanic reconnaissance by David White of the "Red Beds" in the valley of Arkansas River in Colorado and in the Santa Fe quadrangle (N. Mex.) resulted in the discovery of Permian types in portions of the series whose age has, for lack of fossils, hitherto been unknown.

A reconnaissance of the Sylvanite and Fremont mining districts near Hachita, N. Mex., was made by J. M. Hill. (See Professional Paper 68.)

The areal and economic survey of the Silver City quadrangle (N. Mex.) was commenced toward the close of this fiscal year and is now in progress. This work is in charge of Sidney Paige, assisted by J. L. Rich.

Geologic problems in the Raton coal field of New Mexico were studied by F. H. Knowlton and A. C. Peale in connection with investigations of the coal-bearing formations.

A report on a reconnaissance of the ore deposits of northern Yuma County, Ariz., was completed and transmitted by Howland Bancroft, who also submitted a report on the occurrence of quicksilver at Cinnabar, Ariz. (in Bulletin 430).

S. F. Emmons spent a week at Globe, Ariz., studying the geology of that district in the light of underground explorations which have been made since the district was surveyed by F. L. Ransome in 1901–2. As a result of this examination a supplementary report will be prepared by Mr. Ransome.

Brief reports on the occurrence of tungsten minerals near Calabasas, Ariz., and on the placer deposits of Greaterville, Ariz., were prepared by J. M. Hill for Bulletin 430.

Considerable progress was made in the report on the mineral deposits of the Santa Rita and Patagonia mountains of Arizona, which is in course of preparation by F. C. Schrader, assisted by J. M. Hill. The same authors also prepared a special report on the occurrence of molybdenite in these mountains (in Bulletin 430).

Near the close of the year a reconnaissance of some newly developed and promising gypsum deposits in the Rocky Mountain region was begun by E. F. Burchard.

Pacific coast.—During the summer and fall of 1909 the investigations of the California oil fields were continued by Robert Anderson, with R. W. Pack as field assistant. The work was pushed farther beyond the limits of actual production than in previous years, with a view to outlining the areas of possible productive territory in the undeveloped regions adjoining some of the important fields. The early part of the summer was spent in the region surrounding the Carrizo Plain, west of the McKittrick, Midway, and Sunset districts, and the rest of the field season in the Cantua-Panoche region, which extends northward from the Coalinga district. This work resulted in the classification of some tracts as possible oil land and the restoration to entry of large areas of nonoil land which had been temporarily withdrawn pending examination. During the spring of 1910 two reports were issued, one on the geology and oil resources of the Coalinga district, by Ralph Arnold and Robert Anderson (Bulletin 398), and a preliminary report on the McKittrick-Sunset region, by Ralph Arnold and H. R. Johnson (Bulletin 406). A preliminary report on the Cantua-Panoche region was prepared.

Considerable progress was made by B. S. Butler in the completion of the report on the copper-mining district of Shasta County, Cal.

A reconnaissance survey of the gypsum deposits of the Palen Mountains, Riverside County, Cal., was made by E. C. Harder; also a reconnaissance of chromite, manganese, and iron ore deposits in central and western California and western Nevada. Brief reports on these surveys will be found in Bulletin 430.

A detailed examination of the iron ores of the Eagle Mountains, Riverside County, Cal., was made by E. C. Harder and J. L. Rich. A report is in progress. Detailed geologic work in the Randsburg quadrangle (Cal.) was continued by F. L. Hess and some progress was made in the preparation of the report on that area.

The report on the auriferous gravels of California, by Waldemar Lindgren, was sent forward for publication.

At the request of the Forest Service an examination of placer claims in Trinity County, Cal., was made by D. F. MacDonald. These claims included 2,800 acres of supposed mineral ground. A hearing was held from September 1 to September 10 at Redding, Cal.

At the request of the Secretary of War an examination of the underground-water resources of Angel Island, Cal., was made by F. L. Ransome. A brief report on this subject has been submitted.

The geologic mapping of the Ely quadrangle (Nev.) was practically completed by A. C. Spencer and considerable progress was made in the detailed study of the strongly mineralized belt of this region, within which the important copper ores have been developed. The study of these mines is still in progress, but it is expected that the report on this district will be finished and submitted before the close of the present calendar year.

A brief report on an occurrence of platinum in southeastern Nevada was submitted by Howland Bancroft (in Bulletin 430).

An examination of recent underground workings in the Goldfield district of Nevada was made by F. L. Ransome. The report on the survey of this district, made two years ago (Professional Paper 66), appeared in time for distribution at the meeting of the American Mining Congress at Goldfield in October, 1909.

The areal mapping of part of the Sumpter quadrangle, in eastern Oregon, was finished by F. C. Calkins, assisted by J. T. Pardee, and considerable progress was made in the preparation of the maps and report. A paper on the placer deposits of this region was prepared for Bulletin 430 by Mr. Pardee, under the supervision of Mr. Calkins.

An examination of the canyon of Clackamas River above Cazadero, near Portland, Oreg., was made by J. S. Diller, for the purpose of determining the availability of the rock of the canyon walls for the construction of dams. A report on this investigation was published in the daily press of the Pacific coast.

A reconnaissance of the ore deposits in the northeastern part of the State of Washington was commenced by Howland Bancroft. It is expected that the work will be completed during the coming year. Mr. Bancroft also prepared a report on tungsten near Deer Park, Wash. (in Bulletin 430).

GENERAL GEOLOGIC AND PALEONTOLOGIC WORK.

T. W. Stanton has had general supervision of the paleontologic work during the year. In order to make this work of the highest possible service it is necessary to bring the paleontologists and geologists into close touch in the field. Hence most of the field work of the paleontologists is done in connection with geologic parties. The paleontologic work is essential in connection not only with the study of stratigraphic, structural, and areal geology but also with various problems of economic geology. This is notably true of the investigations of oil and coal fields, where the tracing of productive horizons and the correlation of beds from place to place would be impossible without the assistance of the expert paleontologist.

In addition to the aid rendered in the field, a large share of the time of the paleontologists during the office season is occupied in the determination of fossil collections submitted by the field geologists. So fully is their time taken by this routine work that little opportunity remains for the general studies and correlations that are essential for the symmetrical development of the Survey work.

In addition to the supervision of the paleontologic work, Mr. Stanton visited several field parties in South Dakota, North Dakota, Wyoming, and Montana, chiefly those engaged in land-classification surveys, for the purpose of correlating the coal-bearing formations and of studying problems bearing on the late Cretaceous and early Tertiary rocks of the Rocky Mountain region. In cooperation with M. R. Campbell, F. H. Knowlton, W. R. Calvert, and R. W. Stone, Mr. Stanton made a special study of the stratigraphic relations of the Livingston formation of Montana, by means of a reconnaissance trip around the Crazy Mountains. This study resulted in the elucidation of a particularly obscure stratigraphic problem. The formation, which consists of andesitic material, was found to be of small geographic extent and to finger out in various directions into different Tertiary and Upper Cretaceous formations. The details of this investigation have been explained in a report prepared by Messrs. Stone and Calvert. During Mr. Stanton's field work a special study was also made of the Fox Hills sandstone and the overlying Lance formation ("Ceratops beds"), the results of which have been incorporated in a report which has been completed and submitted for publication.

The investigation of the stratigraphy and paleontology of the coal-bearing rocks of the Rocky Mountain region was continued in the field and office by F. H. Knowlton, who also visited numerous field parties in New Mexico, Colorado, Wyoming, and Montana. In addition Mr. Knowlton has been engaged in the preparation of reports on the Laramie flora of eastern Wyoming and the Jurassic flora of the Pacific coast and a catalogue of Mesozoic and Cenozoic plants of North America.

During the year W. H. Dall has continued his studies of the "silex beds" of Florida and the Tertiary faunas of the Pacific coast and the eastern Gulf coast. The collection of American Tertiary fossils at the National Museum is the largest in the world and is constantly consulted by outside paleontologists, as well as by the government paleontologists. Recently valuable accessions have been made, especially from the southeastern States.

Under the joint supervision of F. H. Knowlton and David White the work on the bibliography and compendium of paleobotany has been continued by Miss C. H. Schmidt.

Studies of the Cambrian, Ordovician, and Silurian rocks in central and eastern Pennsylvania were continued by E. O. Ulrich, the principal object being the determination of practical formational boundaries that would be indicated by lithologic criteria and at the same time mark off important stages in the physical and faunal history of the region.

A report on the Cretaceous fossil plants of South Carolina, by E. W. Berry, is nearly finished.

The study of the Mesozoic and Cenozoic Echinodermata of the United States has been continued by W. B. Clark, assisted by M. W. Twitchell. A large amount of new material has been acquired from the work in the Coastal Plain States.

A report on the Tertiary and Cretaceous floras of Georgia has been completed by E. W. Berry and submitted for publication as a professional paper.

A report on the New Madrid earthquake, by M. L. Fuller, has been received.

Considerable progress was made in the preparation of a bibliography of the mineral phosphate industry of the world by C. L. Breger. This bibliography embraces works on the occurrence, mining, treatment, etc., of rock and mineral phosphates, guanos, and artificial phosphatic slags. It is classified by countries and in America by States.

A special study of correlation problems relating to the Devonian rocks of the Allegheny region was made by E. M. Kindle. Type sections in southeastern New York were first examined, and studies were made through the Allegheny Mountain region and in northern Georgia and Alabama. One of the results of this survey has been the preparation of a report, now ready for the press, describing a previously unrecognized southerly extension of the Onondaga fauna. In the office, and for a few days in the field, Mr. Kindle was assisted part of the time by P. V. Roundy, who prepared the fossils for study.

The work of figuring the type Carboniferous specimens of Winchell, which is in charge of G. H. Girty, is nearly finished. The lack of figures of these specimens has been felt by every student of Carboniferous types, and it is expected that this work will be of considerable value. The figures will be accompanied by a reprint of the original descriptions. In the office Mr. Girty has part of the time had the assistance of P. V. Roundy as preparator.

The classification of the physiographic features shown on the topographic maps published by the Survey was completed by W. W. Atwood. This material is arranged from an educational point of view, so as to be of value to those engaged in teaching as well as to those unacquainted with topographic maps. (See circular 9–323 z.)

Geologic problems in eastern, central, and western Wyoming were made the subject of a special investigation by F. H. Knowlton and A. C. Peale. A large amount of material bearing on the correlation of the Upper Cretaceous and Tertiary formations was acquired.

Considerable progress was made by W. D. Johnson in the preparation of a report on the glaciation of the Sierra Nevada. Recent faulting in the Owens Valley of California was also investigated by Mr. Johnson.

A cooperative study of the Eo-Paleozoic rocks of New York, begun several years ago by E. O. Ulrich, of the Federal Survey, and H. P. Cushing and Rudolph Ruedemann, of the New York Geological Survey, was extended around the southern flank of the Adirondack uplift. The results so far as they relate to the "Calciferous" have been published by Messrs. Ulrich and Cushing in the annual report of the director of the New York State Survey.

The special study of the Upper Devonian was continued by H. S. Williams, and considerable progress was made.

A paper on the criteria of downward sulphide enrichment was prepared by F. L. Ransome and read at the meeting of the Canadian Institute at Toronto.

The report by J. P. Smith on the Middle Triassic of America was completed and submitted for publication, and Mr. Smith made good progress in the studies of the Upper Triassic and Lower Triassic.

The geologic map of North America, which has engaged the attention of Bailey Willis for some time, was completed and the engraving has been commenced. The accompanying text is in an advanced state.

Several geologists were detailed to the technologic branch for the purpose of conducting, for the Supervising Architect of the Treasury Department, a survey of the structural materials available in localities where public buildings have been authorized by Congress. About 150 localities were visited and reports forwarded to the Supervising Architect. Among the minerals to which special attention was paid were building and ornamental stones, materials for cement, mortar, concrete, wall plasters, brick, tile, fireproofing wares, and roofing materials. The geologic relations of newly developed deposits were noted, also the advances in the technology of the manufacture and utilization of structural materials and mineral paints.

LAND-CLASSIFICATION BOARD.

Some special features of the work of the land-classification board are discussed on pages 7–10. The detailed statements of the work, with some notes on the other features, are presented below.

PERSONNEL.

The board consists of a general advisory section and such classification sections as may be established from time to time to deal with any particular class of lands. The chairman of the general board is also chairman of the several classification sections and is in charge of the records and office force, consisting of 3 scientific assistants, 6 clerks, and 4 draftsmen.

The advisory board, which is charged with consideration of questions of policy and approval of standards only, consists of the chairman and the chiefs of sections and branches in charge of the field work on which the classifications of the board are based. Its personnel is as follows: A. C. Veatch, chairman; C. W. Hayes, chief geologist; M. O. Leighton, chief hydrographer; M. R. Campbell, chief of section of economic geology of fuels; and Waldemar Lindgren, chief of section of metalliferous ores.

The actual classifications are made by sections composed of three members, the chairman of the board and two members specially qualified in each case to deal with the questions involved in the classification. These sections are at present constituted as follows:

Coal: A. R. Schultz and W. R. Calvert.
Oil: M. J. Munn and Robert Anderson.
Phosphate: F. B. Van Horn and E. O. Ulrich.
Metalliferous deposits: H. D. McCaskey and F. L. Ransome.
Nonirrigable lands: W. C. Mendenhall and J. C. Hoyt.

COAL LANDS.

The year's work in coal-land classification (see pp. 8–9) is shown in detail in the following tables:

Progress of coal-land classification for the year ending June 30, 1910.

[Areas in acres.]

State.	Date.	Total area classified as coal land and appraised.		Total area classified as non-coal land.		Total valuation as fixed for coal land.		Total minimum valuation.		Average price per acre.	
		(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)
Arizona	July 1,1909										
	July 1,1910										
Arkansas	July 1,1909	60,715		70,041		$1,473,762		$1,214,320		$24.3	
	July 1,1910	60,715		70,041		1,473,762		1,214,320		24.3	
California	July 1,1909										
	July 1,1910		7,720		6,242		$585,086		$154,404		$75.8
Colorado	July 1,1909	488,826	104,298	2,595,851	331,865	14,116,985	2,325,330	7,136,850	2,085,960	28.9	22.3
	July 1,1910	349,264	1,807,521	2,069,923	2,718,871	9,893,425	115,755,958	4,360,010	35,196.015	28.3	64.0
Montana	July 1,1909	457,676	493,931	5,567,533	2,241,210	9,004,115	12,026,847	8,670,651	9,739,919	19.7	24.3
	July 1,1910	405,556	792,351	4,826,109	3,642,754	7,962,915	20,604,859	7,629,451	15,164,461	19.6	26.0
New Mexico	July 1,1909	1,795,918		3,502,931		21,894,731		21,861,171		12.2	
	July 1,1910	1,794,258	7,406	3,368,410	249,748	21,853,231	274,486	21,827,971	148,128	12.2	37.1
North Dakota	July 1,1909	227,795				4,480,295		4,480,295		19.7	
	July 1,1910	227,795			679,075	4,480,295		4,480,295		19.7	
Oregon	July 1,1909			884,617							
	July 1,1910		80	884,617			1,600		1,600		20.0
South Dakota	July 1,1909										
	July 1,1910				4,340,366						
Utah	July 1,1909	416,007		1,197,678		12,743,525		6,258,738		30.6	
	July 1,1910	398,661	67,092	1,167,417	286,942	12,100,205	3,521,591	5,964,610	1,201,591	30.4	52.5
Washington	July 1,1909			627,198							
	July 1,1910			627,198	6,240						
Wyoming	July 1,1909	2,000,114	144,344	4,577,837	1,839,546	41,990,766	16,136,174	34,424,435	2,316,833	21.0	111.8
	July 1,1910	1,355,064	2,936,599	2,659,181	5,738,341	26,696,448	224,672,347	22,627,798	50,093,112	19.7	76.5
Total	July 1,1909	5,447,051	742,573	19,023,686	4,412,621	105,704,179	30,488,351	84,046,460	14,142,712	19.4	41.1
	July 1,1910	4,591,313	5,618,769	15,672,896	17,668,579	84,460,281	365,415,927	68,104,455	101,959,311	18.4	65.0

[a] Under old regulations.

[b] Under new regulations.

Statement of coal-land withdrawals.

[Areas in acres.]

State.	Withdrawals outstanding July 1, 1909.	New withdrawals.[a]	Restorations and classifications.[b]	Withdrawals outstanding July 1, 1910.
Arizona		161,280		161,280
Colorado	10,224,368	701,265	4,736,372	6,189,261
Montana	6,692,985	14,619,371	1,103,491	20,208,865
New Mexico	4,160,787		1,216,508	2,944,279
Oregon	379,722		80	379,642
Utah	5,199,843	953,930	338,486	5,815,287
Washington	2,252,087		44,120	2,207,967
Wyoming	13,218,830	3,989,882	4,218,647	12,990,065
	42,128,622	20,425,728	11,657,794	50,896,646

[a] Exclusive of change in form and including 587,306 acres which were rewithdrawn where new data indicated the existing classification to be erroneous.

[b] Exclusive of classification of areas never withdrawn, amounting to 5,457,443 acres, of which 5,019,441 acres of noncoal land are in the old Standing Rock and Cheyenne Indian reservations, North Dakota and South Dakota, and of reclassifications amounting to 4,206,528 acres.

Outstanding coal classification work.—The work of the coal-land board is in arrears to the extent of 7,432,091 acres on which field work is reported as completed, but on which classifications have not been sent to the General Land Office, and to the extent of 20,264,209 acres which are classified under the old regulations but have not been reclassified under the new. Action on most of this work is well advanced and will probably be completed during the coming fiscal year.

Applications for reclassification.—Applications for the reclassification of lands classified as coal land are forwarded to this office by the General Land Office. These petitions allege that the existing coal classification of the lands is erroneous and that they should properly be classed as noncoal lands. In 3 cases during the year the allegation of the applicant was sustained and the lands classified as noncoal. In 3 other cases it was sustained as to a part of the land involved, and in 116 cases the application was denied. There are pending at the end of the year 5 such applications, making a total of 127, which are divided among the several States as follows:

Applications for reclassification of areas classified as coal land.

State.	Approved.	Part approved.	Denied.	Pending.	Total.
Colorado				2	2
Montana	3	1	43	2	49
New Mexico			7	1	8
Utah		2	2		4
Wyoming			64		64
	3	3	116	5	127

OIL LANDS.

The status of the work on oil lands (see p. 10) is indicated in the following table:

Statement of oil-land withdrawals.

[Areas in acres.]

State.	Withdrawals outstanding July 1, 1909.	New withdrawals.[a]	Restorations.	Withdrawals outstanding July 1, 1910.
Arizona		230,400		230,400
California	2,270,144	591,062	378,456	2,482,750
Colorado		87,474		87,474
Louisiana	1,451,520		1,036,800	414,720
New Mexico		419,901		419,901
Oregon	74,849			74,849
Utah		1,196,848	615,282	581,566
Wyoming	173,530	223,575	141,644	255,461
	3,970,043	2,749,260	2,172,182	4,547,121

[a] Excluding changes in form of withdrawals.

PHOSPHATE LANDS.

The withdrawals of phosphate lands (see p. 8), by States, are as follows:

Statement of phosphate-land withdrawals.

[Areas in acres.]

State.	Withdrawals outstanding July 1, 1909.	New withdrawals.	Restorations.	Withdrawals outstanding July 1, 1910.
Florida		2,400		2,400
Idaho	1,625,425	189,132	712,240	1,102,317
Utah	524,975	8,116	425,546	107,545
Wyoming	2,364,175	202,306	1,184,630	1,381,851
	4,514,575	401,954	2,322,416	2,594,113

MINERAL CLAIMS IN NATIONAL FORESTS.

In a number of cases, involving claims under the mining laws to lands within national forests, the Forester has requested the Geological Survey to make special examinations. Reports on the examination of 29 such claims have been transmitted to the board during the year by the chief of the section of economic geology of metalliferous ores. The land in 17 of these claims was found by the metalliferous section of the land board to be nonmineral, and that in 12 to be only in part mineral land. The total area classified as nonmineral land was 4,237 acres and that as mineral land 1,130 acres.

ACTION ON SPECIAL AGENTS' REPORTS ON MINERAL CHARACTER OF LANDS IN NONMINERAL SELECTIONS.

The Commissioner of the General Land Office has from time to time during the year transmitted reports of special agents of his office regarding the mineral character of nonmineral selections. For the most part these reports have dealt with the coal character of the land, but of the 302 reports that have been received, 2 have related to precious metals, 4 to iron, 2 to phosphate, and 2 to oil. The reports of the special agents were approved in 209 cases, disapproved in 66, and approved as to part of the area involved in 4. The portion of the reports approved involves 75,435 acres, that disapproved 16,880 acres. The action by States is shown in the following table:

Action on special agents' reports on the mineral character of lands in nonmineral selections, year ending June 30, 1910.

[Areas in acres.]

State.	Approved.		Approved in part (number).	Disapproved.		Pending.		Total.	
	Number.	Area.		Number.	Area.	Number.	Area.	Number.	Area.
Arkansas				2	320			2	320
California				2	480			2	480
Colorado	6	880		3	440	4	560	13	1,880
Idaho						1	40	1	40
Montana	39	27,635		12	1,640			51	29,275
New Mexico		80	1		80			1	160
North Dakota						1	80	1	80
Oregon	5	360						5	360
Utah	95	24.840	2	27	8,700	17	3,080	141	36,680
Washington	6	10.840						6	10,840
Wyoming	58	10.800	1	20	5,160			79	15,960
	209	75,435	4	66	16,880	23	3,760	302	96,075

POWER SITES.

The status of the work on power sites (see p. 8) appears in the subjoined table:

Statement of power-site withdrawals.

[Areas in acres.]

State.	Withdrawals outstanding July 1, 1909.	New withdrawals.	Restorations.	Withdrawals outstanding July 1, 1910.
Arizona		107,550		107,550
California		47,819		47,819
Colorado	22,240	182,776	3,467	201,549
Idaho	59.882	171,089		230,971
Montana	46,367	77,029	881	122.515
Nevada		14,091		14,091
New Mexico		14.536		14,536
Oregon	81,118	96,803	1,200	176,721
Utah	34,880	380.671	35,639	379,912
Washington		55.439		55,439
Wyoming	35,383	72.015	4,002	109,396
	279,870	1,219,818	45,189	1,454,499

REPORTS ON RIGHT-OF-WAY APPLICATIONS.

On November 3, 1909, on recommendation of the Commissioner of the General Land Office, the Secretary directed that all right-of-way applications be forwarded to the Geological Survey for report, in order that no application might be approved which would interfere with any valuable power site desired to be withdrawn in aid of legislation. Of the 261 such applications which have been received, 130 were found to affect sites not valuable for power, the lands covered by 73 were included in power-site withdrawals or such stipulations were made as to fully protect the power sites involved, and 58 are now pending, for the most part awaiting the results of field investigations.

REPORTS ON CAREY ACT SELECTIONS.

Twenty applications under the Carey Act have been referred to the board during the year for report as to the feasibility of the proposed irrigation. Adverse reports were made with respect to eleven of these; favorable reports on the remaining nine.

ENLARGED-HOMESTEAD DESIGNATIONS.

Immediately after the passage of the enlarged-homestead act large areas were designated in each of the States affected thereby. These designations did not cover all the lands of the character named in the act, but only those areas which, so far as it was possible from existing information to determine quickly, should be designated. The data on which some of the designations were made proved to be inaccurate, and a correction of the errors by the cancellation of the parts of the designations involved was necessary. Throughout the year an effort has been made to increase designations wherever there was a demand therefor, on the basis either of information already at hand or of that supplied by special field examinations. These field examinations were made not only by the Geological Survey but by the General Land Office. The designations and cancellations during the year are shown below:

Enlarged-homestead designations and cancellations, year ending June 30, 1910.

State.	Total area subject to provisions of act on July 1, 1909.	Additional designations made during fiscal year.	Cancellations of designations erroneously made.	Total area subject to provisions of act on July 1, 1910.
Arizona	26,657,280			26,657,280
Colorado	20,299,840	3,880		20,303,720
Montana	19,957,960	[a] 9,728,366	200	29,686,126
Nevada	49,512,960			49,512,960
New Mexico	14.808,520	1,138,963	64,140	15,883,343
Oregon	8,346,560	820,400		9,166,960
Utah, secs. 1-5 only	7,020,642	308,463		6,654,469
Utah, sec. 6	[b] 571,182			[b] 1,245,818
Washington	3,576,960	107,096	282,240	3,401,816
Wyoming	10,676,280	6,276,033	47,640	16,904,673
	161,428,184	18,383,201	394,220	179,417,165

[a] Of which 105,080 acres are based on field examinations by General Land Office.
[b] Based on field examinations by General Land Office.

During the fiscal year 256 petitions for designations under the enlarged-homestead act have been received. These, with the 38 pending at the close of the last fiscal year, make a total of 294, which have been acted on as follows:

Action on petitions under the enlarged-homestead act, year ending June 30, 1910.

State.	Designations made.		Refused.	Pending.	Total.
	Including all lands asked for.	Including only part of lands asked for.			
Arizona			4	1	5
Colorado	1		10		11
Montana	27	35	28	28	118
New Mexico	29	6	22	8	65
Oregon	16	2	3	2	23
Utah			1	1	2
Nevada			1		1
Washington	4	2	12		18
Wyoming	26	10	6	9	51
	103	55	87	49	294

DIVISION OF ALASKAN MINERAL RESOURCES.

The work of the division of Alaskan mineral resources was carried on under an appropriation of $90,000 for "continuation of the investigation of the mineral resources of Alaska." Under this authority the following classes of work were carried on: Reconnaissance and detailed geologic surveys; special investigations of mineral resources; reconnaissance and detailed topographic surveys; investigations of water resources with reference to the supply available for placer mining; and collection of statistics on mineral production.

PERSONNEL.

The personnel of the division varies greatly during the year on account of the transfer of technical employees to and from other divisions of the Survey and the employment of temporary clerks as the work demands. There have been employed throughout the year 1 geologist in charge, 10 other geologists, 4 topographers, and 3 clerks. In addition to these, 3 geologists were employed on per diem salaries for part of the year. Three engineers gave the greater part of their time to the Alaska work. One topographer was added to the Alaska division by transfer from the topographic branch on April 15, 1910. One engineer was detailed to the division from the water-resources branch for a short period during the field season. A draftsman was also employed in the office for four and a half months, 1 clerk for six months, and 5 clerical assistants for short periods of time.

During the season of 1909 the field force included also 2 topographic and 2 geologic field assistants, together with about 30 teamsters, cooks, etc. In addition, several gage readers were employed, who gave only a part of their time to the work. The temporary assistants in the field force for 1910 included 2 geologic field assistants, with about 27 laborers. On June 30, 1910, the division included 1 geologist in charge, 10 geologists on annual salaries and 3 geologists employed at a per diem compensation, 4 topographers on annual salary, 1 assistant topographer on monthly salary, 1 geologic field assistant, 2 engineers, 27 camp hands, and 3 clerks.

FIELD OPERATIONS IN SEASON OF 1909.

Allotments and areas covered.—Fourteen parties were engaged in Alaskan surveys and investigations during the season of 1909 for varying periods of time between March and November. Some of these parties were subdivided in the field, making a total of seventeen parties that were engaged in investigations of various kinds. In addition to these, the geologist in charge spent a part of the summer in Alaska, carrying on geologic investigations and visiting field parties.

During the year 6,190 square miles were covered by exploratory topographic surveys, 5,170 square miles by reconnaissance topographic surveys, and 444 square miles by detailed topographic surveys.[a] Detailed geologic surveys were made of 450 square miles and geologic reconnaissance surveys of 5,500 square miles, while 6,100 square miles were geologically explored. Most of the geologists also spent considerable time in studying special problems connected with the mineral deposits. The investigation of the water supply in placer districts covered an area of approximately 6,600 square miles and included 81 gaging stations maintained and 703 measurements of stream volumes. Fifteen of the twenty-eight mining districts of Alaska which are being developed, including all but two of the most important, were visited by members of the staff. The following table shows the allotment of the appropriation to the different districts of Alaska. These figures include the cost of both field and office work as well as inspection.

Allotments to Alaskan surveys and investigations, 1909–10.

Southeastern Alaska	$10,700
Copper River region	8,200
Kenai Peninsula, Iliamna Lake, and Alaska Peninsula region	27,950
Matanuska region	10,900
Northwestern Alaska, including Seward Peninsula	13,400
Yukon basin	18,850
	90,000

The following table shows approximately the amount of money devoted to each class of investigation. It is not possible to give the exact figures, as in some cases the same party, or even the same man, carried on two different kinds of work; but this statement will help to elucidate the later table, which summarizes the complete areal surveys.

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[a] Exploratory surveys are published on a scale of 1 : 625,000 or 1 : 1,000,000; reconnaissance surveys on a scale of 1 : 250,000 or 1 : 500,000; and detailed surveys on a scale of 1 : 62,500.

Approximate allotment of Alaskan funds to different classes of surveys and investigations, 1909–10.

Geologic reconnaissance and exploratory surveys	$31,800
Detailed geologic surveys	9,200
Special geologic investigations	2,500
Topographic reconnaissance and exploratory surveys	11,500
Detailed topographic surveys	15,000
Investigation of water resources	8,300
Collection of statistics of mineral production	1,500
Miscellaneous, including clerical salaries, administration, inspection, instruments, and office supplies and equipment	10,200
	90,000

Allotments for salaries, field expenses, and office salaries are shown in the following table. The scientific and technical salaries include those of geologists, topographers, and engineers. Salaries of temporary employees are included under field expenses.

Allotments for salaries, field and office expenses, 1909–10.

Scientific and technical salaries	$30,720
Field expenses, including equipment and supplies	50,660
Clerical and other office salaries	8,620
	90,000

The following table shows the progress of Alaskan surveys since the beginning of systematic work in 1898:

Progress of surveys in Alaska, 1898–1909.[b]

Year.	Appropriations.	Areas covered by geologic surveys (square miles).			Areas covered by topographic surveys (square miles).[b]			Lines of levels (miles).	Bench marks set.	Investigations of water resources.	
		Exploratory (scale 1:625,000 or 1:1,000,000).	Reconnaissance (scale 1:250,000).	Detailed (scale 1:62,500).	Exploratory (scale 1:625,000 or 1:1,000,000).	Reconnaissance (scale 1:250,000; 200-foot contours).	Detailed (scale 1:62,500; 25, 50, and 100 foot contours).			Gaging stations maintained part of year.	Stream-volume measurements made.
1898–99	$46,189.60	9,500			12,840	2,070					
1899–1900	25,000.00	6,000			8,690						
1900–1	60,000.00	3,300	6,700		630	11,150					
1901–2	60,000.00	6,200	5,800		10,200	5,450					
1902–3	60,000.00	6,950	10,050		8,330	11,970	96				
1903–4	60,000.00	5,000	8,000	96		15,000					
1904–5	60,000.00	4,050	3,500		800	6,480	480	86	19		
1905–6	80,000.00	4,000	4,100	536		4,880	787	202	28		
1906–7	80,000.00	5,000	4,000	421		13,500	40			14	296
1907–8	80,000.00	2,600	1,400	442		6,120	501	95	16	48	457
1908–9	80,000.00	2,000	2,850	604		3,980	427	76	9	53	556
1909–10	90,000.00	6,100	5,500	450	6,190	5,170	444			81	708
	781,189.60	60,700	51,900	2,549	47,680	85,770	2,775	459	72		
Percentage of total area of Alaska		10.35	8.85	0.44	8.13	14.63	0.47				

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[a] The areas presented in this table differ somewhat from those previously published. This is in part due to the reclassification of the work and in part to the fact that areas have been more carefully scaled off the map than was previously done.

[b] In addition to the above, the International Boundary Survey and Coast and Geodetic Survey have made surveys of parts of Alaska.

The above table presents the progress of Alaskan surveys and investigations so far as is possible in tabular form and in percentages of the total areas which have been mapped geologically and topographically. From 1904 to 1908, inclusive, much of the appropriation was allotted to detailed surveys. There being, however, great need for the investigation of new regions, nearly half the appropriation in 1909 was spent on exploratory and reconnaissance surveys. As a consequence, over 11,000 square miles were covered during the year by topographic and geologic exploratory and reconnaissance mapping. This large amount of exploratory surveying has been done, however, at the cost of curtailing much detailed work for which there is urgent demand.

General investigations.—The field investigations of Alfred H. Brooks, geologist in charge of the division, covered the period from about June 25 till October 1. Of the time actually devoted to field work, about two weeks was spent with Mr. Moffit and Mr. Capps on the geology of the Nizina district. A month was then occupied in making an overland trip through the Copper and Tanana valleys to Fairbanks. During this journey special attention was given to the matter of selecting areas for subdivisional surveys. About a week was spent at Fairbanks in making a hasty examination of the lode deposits and in visiting the Prindle party. Later, the return journey to the coast was made by way of Yukon River and White Pass. About a week was spent with Mr. Knopf and Mr. Bagley, who were surveying near Eagle River, in the Juneau district.

In the office Mr. Brooks has given a large part of his time to administrative and routine work, in which he was aided by R. H. Sargent, who supervised the Alaskan topographic surveys. During Mr. Brooks's absence in the field E. M. Aten looked after the office work and also rendered valuable services in the office routine and in the compilation of the mineral statistics of Alaska. About one month in all was devoted to the continuation of the work on the Mount McKinley report. A large part of Mr. Brooks's time during the winter months was given to a study of the distribution of and markets for coal in the countries bordering the Pacific Ocean. Some of the results of these investigations are contained in the annual progress report (Bulletin 442).

By instructions from the Secretary, Mr. Brooks and Mr. Sargent made a comprehensive scheme for subdivisional surveys in Alaska and submitted estimates of cost. On the basis of this estimate an appropriation of $100,000 for surveys of public lands in Alaska was made in the sundry civil act. This work is to be carried on by the Geological Survey and the General Land Office in cooperation. The money does not become available till July 1, but plans are made to start surveys in the Fairbanks district as soon as parties can be put in the field after that date. Mr. Sargent has been charged with the execution of these plans and is assisted by C. L. Nelson, S. G. Lunde, and W. N. Vance, who have been detailed from the topographic branch. It is believed that these agricultural surveys will result in the homesteading and cultivation of considerable good agricultural land, which should reduce, to some extent, the cost of living in many of the mining centers. It is estimated that Alaska contains a possible agricultural and grazing area of 15,000 or 20,000 square miles, and these land surveys should be pushed to completion as rapidly as possible.

Southeastern Alaska.—The detailed geologic mapping of the Berners Bay district was completed by Adolph Knopf, who also completed the survey of about two-thirds of the gold belt between Berners Bay and Juneau. Mr. Knopf mapped a total area of about 125 square miles.

Surveys for the topographic base maps needed for the detailed geologic work between Berners Bay and Juneau were made by J. W. Bagley and R. E. Johnson. Work was continued in this field from May to October, and about 154 square miles was surveyed, being about nine-tenths of the total area.

C. W. Wright was employed for about three months in the office on his report on the copper deposits of the Kasaan Peninsula and Copper Mountain districts. He was called to Sardinia on private work before the report was finished, but arrangements have been made by which he will complete the report during the next fiscal year.

Copper River region.—F. H. Moffit, assisted by S. R. Capps, made a detailed survey of the copper and gold bearing belt covered by the Nizina special topographic map. Field work began the first of July and continued until the middle of September, during which time 325 square miles was mapped.

Kenai Peninsula and Prince William Sound.—A reconnaissance of the Prince William Sound region was completed by U. S. Grant in 1908, but in 1909 some additional data were obtained. Most of the season was devoted by Mr. Grant, assisted by D. F. Higgins, to a reconnaissance of the southeastern part of Kenai Peninsula. In the course of this work the newly discovered lode districts of Moose Pass and False Creek were visited. In all about 600 square miles was covered by geologic and topographic surveys.

Southwestern Alaska.—W. W. Atwood completed his report on the geology and mineral resources of the Alaska Peninsula, which was transmitted for publication on June 27. This report includes not only the results of his own investigations in that portion of Alaska, but a compilation of all previous work done in this portion of the district by members of the Geological Survey.

Iliamna and Clark lakes region.—As a part of the general plan to extend reconnaissance surveys as rapidly as possible, such work was undertaken in the Iliamna and Clark lakes region. D. C. Witherspoon, assisted by C. E. Giffin, made a topographic survey of an area of 5,150 square miles, while G. C. Martin, assisted by F. J. Katz, mapped the geology of about 3,000 square miles in the same field.

Matanuska Valley.—In accordance with the policy of surveying the more valuable coal fields as soon as circumstances permit, the preparation of the base map of the Matanuska field was undertaken this year. This survey was made by R. H. Sargent, assisted by J. B. Leavitt, who covered some 196 square miles.

Yukon basin.—The reconnaissance geologic mapping of that part of the Fairbanks quadrangle lying north of the Tanana was completed by L. M. Prindle, assisted by B. L. Johnson. The Prindle party mapped about 2,000 square miles and also made a study of the newly discovered auriferous lode district near Fairbanks.

In 1907 investigation of the water resources of the Yukon-Tanana district was begun in the Fairbanks region. This work was extended by C. E. Ellsworth in 1909. For the purpose of obtaining data regarding the spring run-off when the melting of the snow takes place in March Mr. Ellsworth proceeded to Fairbanks over the ice. He devoted the early part of the season to a study of the water conditions of the streams tributary to the Chatanika, and later proceeded overland to the Circle district. The remainder of the season was devoted to stream gaging in the Circle and Fairbanks regions. Twenty-one gaging stations were maintained during the whole or part of the season, and 232 measurements of stream volume were made. This work furnishes data in regard to the run-off of about 3,000 square miles.

Reconnaissance surveys were made of the Koyukuk and Chandalar district in 1899. The rich placer discoveries in this district during the last few years made a reexamination imperative. A. G. Maddren was assigned to this work, and in the course of the season visited all the productive placers in the field and also made geologic and topographic surveys of some 500 square miles.

Norton Bay region.—An exploratory survey of the region lying north and east of Norton Bay and between the lower Yukon and Seward Peninsula was made by P. S. Smith, assisted by H. M. Eakin. An area of about 5,000 square miles was covered by this party, in addition to which a more detailed geologic and topographic survey of some 200 to 300 square miles was completed.

The investigation of the water resources of Seward Peninsula, so far as they refer to placer mining, was begun in 1906 and continued through 1907, 1908, and 1909. In 1909 the work was in charge of F. F. Henshaw, assisted by G. L. Parker, who maintained 60 gaging stations and made 471 stream-flow measurements. Stream gaging has now been continued through four years, which gives fairly definite results regarding run-off. A report is in preparation by Mr. Henshaw, which will summarize all the data and also discuss the methods of mining.

Collection of statistics.—The work of collecting statistics of gold, silver, and copper production from the operators begun in 1906 was continued through 1909. It is gratifying to note that the operators are showing an increased interest in this work, and that most of the large producers are now furnishing the desired information in regard to production. During 1909 practically every lode mine of importance in the Territory furnished the statistical data requested. There are still many placer miners who have neglected to reply to the inquiries, which are of necessity sent by mail.

FIELD OPERATIONS FOR SEASON OF 1910.

Under an allotment of $90,000 thirteen parties were dispatched to Alaska during the months of March, April, May, and June. One of these parties is carrying on detailed topographic surveys in southeastern Alaska. Another is doing detailed geologic work in the same region. One geologic party and two topographic parties are making reconnaissance surveys in the upper Copper and Susitna basins. Two parties are making detailed geologic surveys of the Matanuska coal field and adjacent areas. One party has begun a geologic and topographic reconnaissance survey of the region bounded by Tanana River on the north, the Delta on the east, the Nenana on the west, and the Alaska Range on the south.

The investigation of the water resources of the Fairbanks, Birch Creek, and Rampart regions is being continued, and similar work has been started in the Fortymile district. A party is also engaged in making an exploratory survey from the Koyukuk to the Kobuk and thence to Seward Peninsula. The survey of the Innoko placer district made in 1907 is being extended. Some gaging stations are being continued in Seward Peninsula.

OFFICE WORK.

During the year two bulletins (Nos. 410 and 417) which contain results of the work of the Alaska division have been issued. Both contain maps and in addition there have been issued separately as sale publications two reconnaissance maps, those of the Rampart and Fairbanks quadrangles.

The following publications are in press:

Geology and mineral resources of the Solomon and Casadepaga quadrangles, Seward Peninsula, Alaska, by P. S. Smith (Bulletin 433).

The Fortymile quadrangle (reconnaissance map 1, by E. C. Barnard), new edition; scale 1:250,000; contour interval, 200 feet.

There have been submitted for publication the following manuscripts:

The Yakutat Bay earthquake of September, 1899, by R. S. Tarr and Lawrence Martin (Professional Paper 69).

Mineral resources of Alaska; report on progress of investigations in 1909, by Alfred H. Brooks and others (Bulletin 442).

Reconnaissance of the geology and mineral resources of Prince William Sound, Alaska, by U. S. Grant and D. F. Higgins (Bulletin 443).

Geology and mineral resources of the Berners Bay region, Alaska, by Adolph Knopf.

Geology and mineral resources of the Nizina district, by F. H. Moffit and S. R. Capps.

Geology and mineral resources of parts of the Alaska Peninsula, by W. W. Atwood.

Geologic reconnaissance in the southeastern part of Seward Peninsula and the Norton Bay-Nulato region, by P. S. Smith and H. M. Eakin.

The Circle quadrangle (reconnaissance map), by D. C. Witherspoon, T. G. Gerdine, and J. W. Bagley; scale, 1:250,000; contour interval, 200 feet.

The following reports are in hand:

Geology and mineral resources of the Nome and Grand Central quadrangles, by F. H. Moffit and P. S. Smith (75 per cent completed).

Geology of the Fairbanks district, by L. M. Prindle (75 per cent completed).

The Mount McKinley region, by Alfred H. Brooks and L. M. Prindle (Professional Paper 70; 95 per cent completed).

Geology and ore deposits of the Kasaan Peninsula and Copper Mountain region, Prince of Wales Island, by C. W. Wright (60 per cent completed.)

The Koyukuk and Chandalar placer districts, by A. G. Maddren (75 per cent completed).

Geologic reconnaissance in the Iliamna and Clark lakes region, by G. C. Martin and F. J. Katz (80 per cent completed).

Geology of the Fairbanks quadrangle, by L. M. Prindle (50 per cent completed).

The water supply of Seward Peninsula, by F. F. Henshaw (30 per cent completed).

Geology of the Glacier and Lituya bays region, by F. E. Wright and C. W. Wright (30 per cent completed).

The stratigraphy of the Upper Cretaceous and Tertiary coal horizons of Alaska, by W. W. Atwood (10 per cent completed).

The following maps have been completed during the year. Some will be held for the survey of additional areas before publication. The office work on maps is completed to date.

Kasaan special map, Prince of Wales Island; scale 1: 62,500; contour interval 50 feet. Topography by R. H. Sargent, J. W. Bagley, and D. C. Witherspoon.

Copper Mountain special map, Prince of Wales Island, by R. H. Sargent; scale 1: 250,000; contour interval 50 feet.

Eagle River special map, by J. W. Bagley; scale 1: 62,500; contour interval 50 feet. Additional areas to be surveyed before publication.

Reconnaissance map of Iliamna and Clark lakes region, by D. C. Witherspoon and C. E. Giffin; scale 1: 250,000; contour interval 200 feet.

Matanuska special map, by R. H. Sargent; scale 1: 62,500; contour interval 50 feet.

Nabesna quadrangle (reconnaissance map), by D. C. Witherspoon and J. W. Bagley; scale 1 : 250,000; contour interval 200 feet. Additional areas to be surveyed before publication.

Gardiner Creek quadrangle (reconnaissance map), by D. C. Witherspoon and J. W. Bagley; scale 1:250,000; contour interval 200 feet. Additional area to be surveyed before publication.

Map of Seward Peninsula, by U. S. Geological Survey; scale 1: 500,000; contour interval 200 feet.

GEOLOGIC RESULTS.

Mr. Knopf's studies in the Berners Bay region show that a part of the rocks of the Juneau gold belt, all previously assigned to the Carboniferous, are Jurassic—a result which indicates a very close similarity between the geology of this field and that of the California Mother Lode district. The work of Mr. Grant and Mr. Higgins shows that the metamorphic rocks of Kenai Peninsula, like those of Prince William Sound, are divisible into two large groups. The Iliamna and Clark lakes region has been found by Mr. Martin and Mr. Katz to be made up largely of lavas and intrusive rocks, with some Mesozoic and Paleozoic sediments. The cupriferous mineralization seems to be similar in character to that of Prince of Wales Island, and the copper ores occur near the contacts of crystalline limestones and intrusives. Messrs. Moffit and Capps have shown that the Jurassic rocks of the Nizina district are locally auriferous, and this fact suggests that the mineralization may belong to the same epoch as that of southeastern Alaska. In the Fairbanks district Mr. Prindle's studies have shown that there were two periods of intrusion by quartz veins and that the later one was accompanied by auriferous mineralization. In the Koyukuk Mr. Maddren found evidence of a much wider extent of glaciation than was previously supposed. The work of Mr. Smith and Mr. Eakin shows that the region between Norton Bay and Seward Peninsula is largely occupied by Cretaceous rocks. Of significance is their determination of the Mesozoic age of the auriferous mineralization on Bonanza Creek.

DIVISION OF MINERAL RESOURCES.

What is now the division of mineral resources was organized in 1882 as the division of mining statistics and technology under the direction of Albert Williams, jr. Mr. Williams continued in charge until 1885 and was succeeded by David T. Day, who remained in charge until August, 1907, when (at his own request) he was relieved of the administrative duties. Since that time the work of the division has been carried on under the supervision of Edward W. Parker as statistician in charge. At the time that Mr. Parker took charge of the division Waldemar Lindgren was placed in charge of the section relating to metalliferous statistics (except iron).

The statistical reports of this division cover the calendar year. The first report was published in 1883 and covered the calendar year 1882. As the statistics are compiled for the calendar year, the expenses of compilation and publication are necessarily distributed through two fiscal years. On account of the great development in the mining industry during the past few years it has been necessary to increase the size of the publications, and the reports for 1907 and 1908 have been issued in two octavo volumes each. The report for 1909 will also be published in two volumes.

Since 1906 the annual appropriation "for the preparation of the report on the mineral resources of the United States" has been $75,000. While these reports are necessarily to a large extent statistical compilations, the effort in recent years has been toward making them also a storehouse of information regarding the occurrence, development, and utilization of the mineral products of the country. It seems that the knowledge of what are the resources of the future is even more essential to our economic development than the record of the past as shown in the statistical compilations. In carrying out this idea the cooperation with the division of geology has been most helpful. The geologists and assistant geologists chosen to aid in the preparation of the report on mineral resources have been those who have specialized in these lines of investigation, and their combined work, having the more scientific bearing in geology and the economic bearing in mineral resources, has been mutually beneficial.

The report for 1908, of two volumes, contains a total of 1,715 pages. Among the important contributions to this report were maps showing the occurrence of the different varieties of iron ores and of petroleum and natural gas, similar to the maps showing the distribution of coal throughout the United States and of the precious and semiprecious metals in the Western States, which were published in the report for 1907. It is proposed to prepare similar maps for future reports showing the distribution of the varieties of stone suitable for building purposes and of materials suitable for cement manufacture.

For the statistical canvass covering the calendar year 1909 a cooperative plan between the Geological Survey and the Bureau of the Census was arranged and approved by the Secretaries of the Departments of the Interior and of Commerce and Labor. This plan includes in the first place the furnishing by the Geological Survey to the Census Bureau of all its complete lists of mineral producers throughout the country. A supplemental schedule for the statistics of production was printed for the use of both the Census and the Survey, the expense of printing being borne by both bureaus in an agreed proportion. The supplemental schedules are collected by the special agents of the Census at the same time they are collecting the general schedules required for the Census Bureau, and are transmitted by the Census Bureau to the Geological Survey for the tabulation of the statistics of production. This tabulation is being done by the division of mineral resources, and the Census Bureau will accept the results as furnished by the Survey. On account of the more detailed information required by the Census Bureau, and because of the fact that practically all the work is being done by special agents in the field, the completion of the report will necessarily be delayed beyond the usual date of publication, but the schedules as transmitted by the Census Bureau have been in the main satisfactorily filled out and less correspondence has been necessary than when the work is done by mail. Up to June 30, 1910, the percentage of schedules received was 25.80. Comparisons with the previous year for the more important subjects for which figures for both years are available are as follows:

Schedules received from producers, June 30, 1909 and 1910.

Industry.	Schedules received.	
	June 30, 1909.	June 30, 1910.
	Per cent.	*Per cent.*
Building stone	97	26
Clay working	98	35
Coal	98	26
Coke	100	15
Iron ores	100	24
Natural gas	90	43
Quicksilver	99	33

A few subjects were omitted from the cooperative agreement with the Census Bureau. These were sand and gravel, mineral waters, aluminum, and briquets. The report on sand and gravel has been completed and transmitted to the printer. Statistics for the reports on mineral waters and briquets have been completed, and the reports will be transmitted to the printer early in July. The Survey also prepared a preliminary report on cement production. This was done on the request of the cement producers for an early publication of the statistics for 1909. A special report on the distribution of Lake Superior iron ores, accompanied by a map, was prepared and transmitted to the printer in May. An important part of the work during the last fiscal year has been the preparation of a chapter on the useful minerals of the United States, similar to those published in the reports for 1882 and 1887. Since the publication of the chapter in the 1887 report a large amount of information has been made available through the work of the Geological Survey and of the state geologists, and it is believed that this publication will be of much value.

During the month of January preliminary statistics of production in 1909, with reviews of the trade during the year, were given to the press in the form of special bulletins on the following subjects: Gold and silver; copper, lead, and zinc; cement; coal; and petroleum.

A considerable portion of the time of the specialists was consumed in answering technical inquiries and in making examinations of numerous mineral specimens submitted by different persons for determination. Such information is freely given where a chemical analysis or assay is not necessary, and it is the endeavor of those in charge to answer all such inquiries as promptly as possible.

In the section of metal statistics, under the charge of Waldemar Lindgren, statistics of the annual production of all metals except iron are collected. H. D. McCaskey has the supervision of the local offices in Denver, Salt Lake City, and San Francisco, which are in charge of C. W. Henderson, V. C. Heikes, and C. G. Yale, respectively. It is the duty of these offices to collect data of mine production by direct correspondence with the producers and to keep in constant touch with the mining industry in their respective territories. C. E. Siebenthal is in charge of the collection of statistics from lead and zinc smelters and also obtains by correspondence the production of the lead and zinc mines in the Central States. B. S. Butler gathers the statistics from copper smelters and also from the mines of Michigan. F. L. Hess has in charge the collection of statistics relating to the rarer metals, such as tungsten, tin, arsenic, and antimony. In addition to his duties mentioned above, Mr. McCaskey collects the statistics from the smelting works producing quicksilver and gathers the data from the gold and silver mines in the Eastern States. D. T. Day prepares a report on platinum.

The reports on gold, silver, copper, lead, and zinc are issued in two forms. The first contains what are termed the smelter reports, based on actual production of metals as reported by the smelters; the second, which is termed the mine report, is based on the returns from the individual mines and contains an epitome of the mining operations and output by quantity of metal and tons of ore in all the mining camps in the country. Thus, the volume "Mineral resources" contains, in addition to the figures of actual smelter production, a detailed account of the condition of the mining and smelting industry throughout the United States. All these reports were issued in the last months of the calendar year except the mine reports from the Western States and the general report on gold and silver, which were not published until January, 1910. For all the metals, however, preliminary statements of production had been issued in the first half of 1909. On January 1, 1910, preliminary statements were issued giving the approximate production in 1909 of copper, lead, zinc, quicksilver, and tungsten, and a few days later a preliminary account of the gold and silver industry was issued in conjunction with the Bureau of the Mint.

In accordance with the plans for cooperation between the Geological Survey and the Census Bureau for the collection of metal statistics for 1909 the agents of the latter bureau are now collecting the data on production of mines and smelters for the Geological Survey. As complete figures have not yet been received at the close of the fiscal year, it has not been possible to follow the usual custom of publishing the correct totals at the end of the fiscal year, in advance of the final, more elaborate reports.

In addition to his administrative duties as statistician in charge, Mr. Parker prepares the reports on the production of coal and on the manufacture of coke. David T. Day continues with the division as expert in charge of the work on petroleum and natural gas. He is also preparing the report for 1909 on the allied subjects—asphalt and bituminous rock. This report was formerly prepared by J. A. Taff, who has resigned from the Survey. Jefferson Middleton supervises the preparation of the report on the clay-working industries. The reports on the production of iron and manganese are prepared by E. C. Harder, assistant geologist. E. F. Burchard, assistant geologist, has charge of the reports on building stones and other structural materials, mineral paints, and several other subjects. Samuel Sanford supervises the preparation of the chapter on mineral waters and is also preparing the special chapter on the useful minerals of the United States. F. B. Van Horn, assistant geologist, supervises the work on phosphate rock and fuller's earth, and the following members of the Survey are preparing reports on minor but important mineral substances: J. S. Diller, geologist, asbestos and talc and soapstone; W. C. Phalen, assistant geologist, abrasive materials, aluminum and bauxite, bromine, grindstones and whetstones, salt, sodium and potash, and sulphur and pyrite; E. S. Bastin, assistant geologist, flint and feldspar and graphite; D. B. Sterrett, assistant geologist, mica, monazite and zircon, and precious stones; and C. A. Davis, peat.

In the investigation of the petroleum resources of the United States, carried on by David T. Day, representative samples of petroleum were collected from the Mid-Continent or Kansas and Oklahoma oil field, and in cooperation with the state geologists similar samples were collected from West Virginia and Louisiana. These were submitted to chemical analysis by the uniform system of examination adopted by the Geological Survey in conformity with the recommendations so far made by the international commission for the unification of petroleum-testing methods. Many samples of petroleum sent in by field geologists were similarly examined. In all, 130 specimens were analyzed, and in the course of the work 2,040 individual determinations were made. In cooperation with the division of geology field examinations of the occurrence of petroleum and natural gas were made in Utah, Louisiana, Texas, and New Mexico. The petroleum section also cooperated with the technologic branch in the development of methods of investigation of California petroleum and in the collection and examination of representative fuel oils for use in the navy.

DIVISION OF CHEMICAL AND PHYSICAL RESEARCH.

Routine work in the laboratory has necessarily followed well-established lines. During the year 138 quantitative analyses were reported and 678 qualitative determinations, chiefly of minerals sent for examination by persons not connected with the Survey. Analyses which proved of special interest were those of two tin minerals from Alaska, a new mineral from Colorado allied to amblygonite, the rare mineral thaumasite from a new locality in Utah, and a new mercury mineral from Texas. These analyses were made by W. T. Schaller.

The investigation of the new titanate of iron, which was last year discovered by Chase Palmer in material received from Arizona, has been concluded. The mineral is named arizonite and a description of it has been published by Mr. Palmer.

A study of peat and bog water, with special reference to the humus acid problem, is being made by Mr. Palmer.

A new method for the accurate analysis of natural phosphate rock was worked out by George Steiger, who made an analysis of a composite sample of phosphate rock for the National Fertilizer Association. Additional investigations on the colorimetric determination of fluorine were also made by Mr. Steiger.

The recalculation of the atomic weights was completed by F. W. Clarke and has been published by the Smithsonian Institution. A paper by the same author on chemical denudation has also appeared.

The study of the California tourmaline field was continued by W. T. Schaller, who also prepared a discussion of the composition of the rutile-tapiolite group of minerals.

Investigations of certain minerals containing elements which recent technical developments have rendered important (tungsten, vanadium, molybdenum, uranium, titanium, columbium, tantalum, thorium, and the rare earths) have been conducted by R. C. Wells. It is proposed to publish certain of these results in a bulletin in conjunction with crystallographic and geologic discussions of the minerals by W. T. Schaller and F. L. Hess. Mr. Wells has also published a paper on hydrogiobertite, a basic magnesian carbonate, which has been identified for the first time in this country.

Investigations in the physical laboratory have been conducted as heretofore by C. E. Van Orstrand. The experimental work consisted of a continuation of the experiments on elasticity and diffusivity of metals at various temperatures. The theoretical work consisted largely in a study of the theory of homogeneous stress and strain as applied to rock cleavage. Progress has been made in the preparation of a complete table of the probability integral and its reverse.

Researches on geophysical problems were continued by G. F. Becker, chief of the division. He also published a paper on the origin of the gold of the Witwatersrand and, with Mr. Van Orstrand, "Smithsonian mathematical tables, hyperbolic functions." A second edition of the latter work is already called for and it is undergoing revision at the hands of the authors.

Four bulletins have been issued from this division during the year—Nos. 401, 405, 419, and 422. Titles and brief notes on these bulletins are given on pages 19 and 21. The Smithsonian Institution has also published a paper by Mr. Becker entitled "The age of the earth."

TOPOGRAPHIC BRANCH.

ORGANIZATION.

The organization of the topographic branch remained the same as at the close of the last fiscal year until June 1, when Sledge Tatum was placed in charge of the Rocky Mountain division and E. C. Barnard was detailed to the State Department for work on the United States and Canada Boundary Survey. The branch is now organized as follows:

Chief geographer, R. B. Marshall.
Atlantic division, Frank Sutton, geographer in charge.
Central divison, W. H. Herron, geographer in charge.
Rocky Mountain division, Sledge Tatum, geographer in charge.
Pacific division, T. G. Gerdine, geographer in charge.
Inspectors of topography, J. H. Renshawe, geographer; W. M. Beaman and F. E. Matthes, topographers.

PERSONNEL.

The technical corps of the topographic branch was increased during the year by the appointment of 1 geographer, 19 junior topographers, 2 assistant topographers, and 1 draftsman. It was reduced 41 by transfers and resignations. With these changes the technical force now includes a chief geographer, 10 geographers, 47 topographers, 36 assistant topographers, 58 junior topographers, and 10 draftsmen. One geographer, 8 topographers, and 4 assistant topographers are on leave without pay. In addition to the men named above 95 technical field assistants were employed during the whole or a part of the field season.

PUBLICATIONS.

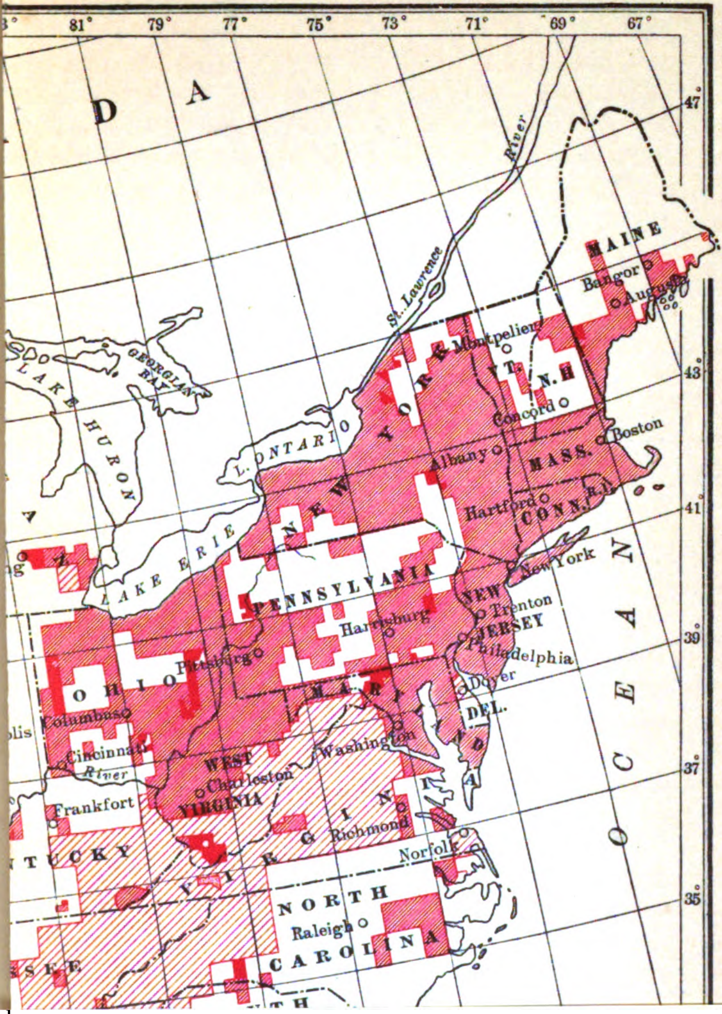
The work of the topographic branch is represented in the following publications issued during the year: Bulletins 399, 411, and 421; 93 new topographic maps. Titles and brief summaries of these publications are given on pages 19–21.

SUMMARY OF RESULTS.

The condition of topographic surveys to July 1, 1910, distinguished as to scale, etc., is shown on Plate II.

As shown in the following tables, which give the details of topographic mapping and spirit leveling for the fiscal year, the total new area mapped was 32,808 square miles, making the total area surveyed to date in the United States 1,107,765 square miles, or about 36.5 per cent of the entire country. In addition 3,731 square miles of revision or resurvey were completed, making the total area of actual surveys for the season 36,539 square miles.

Triangulation stations to the number of 156 were occupied, of which 124 were permanently marked; and in addition 141 points were located by intersections. There were run 2,762 miles of primary


81°
79°
77°
75°
73°
71°
69°
67°
47°
43°
41°
39°
37°
35°
D A
St. Lawrence River
LAKE HURON
GEORGIAN BAY
L. ONTARIO
LAKE ERIE
MAINE
Bangor
Augusta
Montpelier
VT.
N.H.
Concord
NEW YORK
Albany
MASS.
Boston
Hartford
CONN.
R.I.
New York
PENNSYLVANIA
Harrisburg
Pittsburg
NEW JERSEY
Trenton
Philadelphia
Dover
DEL.
MARYLAND
Washington
OHIO
Columbus
Cincinnati
River
WEST VIRGINIA
Charleston
VIRGINIA
Richmond
Norfolk
Frankfort
KENTUCKY
NORTH CAROLINA
Raleigh
OCEAN

traverse, in connection with which 454 permanent marks were set. In the course of this work 23,400 square miles were covered by primary control.

In connection with these surveys 5,216 linear miles of primary levels were run, making the total amount of primary and precise leveling done since the authorization of this work by Congress, in 1896, 224,432 miles.

The area covered by topographic surveys in Alaska during the fiscal year 1909–10, as reported in detail on pages 52–56, was about 11,804 square miles—444 for publication on the scale of 1:62,500, 5,170 for publication on the scale of 1:250,000, and 6,190 for publication on the scale of 1:625,000 or 1:100,000.

Present condition of topographic surveys of the United States and new areas surveyed in 1909–10.

State.	New area surveyed in 1909–10.	Total area surveyed to July 1, 1910.	Percentage of total area of State surveyed to July 1, 1910.
	Sq. miles.	*Sq. miles.*	
Alabama		18,283	35
Arizona	45	63,478	56
Arkansas		20,798	39
California	8,183	92,914	59
Colorado	1,221	41,751	40
Connecticut		4,965	100
Delaware		1,008	43
District of Columbia		70	100
Florida		1,821	3
Georgia	250	17,337	29
Idaho	2,198	18,198	21
Illinois	1,136	10,082	18
Indiana		2,941	8
Iowa	182	10,448	19
Kansas		64,159	78
Kentucky	329	16,476	41
Louisiana	360	8,283	17
Maine	402	7,801	24
Maryland	321	10,771	88
Massachusetts		8,266	100
Michigan	439	4,924	8
Minnesota	495	3,582	4
Mississippi	47	1,796	4
Missouri	320	34,692	50
Montana	3,351	52,648	36
Nebraska		25,974	34
Nevada	1,772	50,475	46
New Hampshire	4	3,380	36
New Jersey		8,224	100
New Mexico	1,733	31,907	26
New York	649	40,221	81
North Carolina	243	17,661	34
North Dakota	741	9,716	14
Ohio	2,022	27,319	67
Oklahoma		38,677	55
Oregon	605	18,279	19
Pennsylvania	629	22,813	50
Rhode Island		1,248	100
South Carolina		5,640	18
South Dakota		17,956	23
Tennessee		20,345	48
Texas	493	66,807	25
Utah	373	67,425	79
Vermont		3,537	37
Virginia		29,980	70
Washington	2,228	20,754	30
West Virginia		24,120	99.8
Wisconsin		11,789	21
Wyoming	2,123	26,026	27
	32,808	1,107,765	

ATLANTIC DIVISION.

FIELD WORK.

SUMMARY.

During the season topographic mapping was carried on in Alabama, Georgia, Louisiana, Maine, Maryland, Mississippi, New York, North Carolina, Pennsylvania, Tennessee, Virginia, and West Virginia. This work comprised the survey of 14 quadrangles and the resurvey or revision of 6 quadrangles. In addition, 18 quadrangles were partly surveyed, 5 were partly resurveyed, and large-scale traverse surveys were made of 2 counties and 1 district. The total new area mapped was 2,905 square miles—2,545 for publication on the scale of 1:62,500 and 360 for publication on the scale of 1:24,000. The area resurveyed was 1,941 square miles—633 for publication on the scale of 1:125,000 and 1,308 for publication on the scale of 1:62,500. In connection with this work, 994 miles of primary levels were run and 268 permanent bench marks were established.

Primary triangulation and primary traverse were carried on at different times by five parties, the work being distributed over portions of Louisiana, Maine, Maryland, North Carolina, and West Virginia. The total area covered by the primary control was about 2,500 square miles, of which 1,350 were controlled by primary traverse, 537 miles being run and 115 permanent marks set. Eighteen triangulation stations were occupied and 11 were marked. The result of this work was to make control available in six 15-minute quadrangles and one irregular area.

Topographic surveys in Atlantic division from July 1, 1909, to June 30, 1910.

State.	Contour interval.	For publication on scale of—			Total area surveyed.	Levels.		Primary traverse.	
		1:125,000.	1:62,500.			Distance run.	Bench marks.	Distance run.	Permanent marks.
		Resurvey.	New.	Resurvey.					
	Feet.	*Sq. miles.*	*Sq. miles.*	*Sq. miles.*	*Sq. miles.*	*Miles.*		*Miles.*	
Alabama	50	....	....	250	250	64	20	....	....
Georgia	20	....	250	....	250	71	15	....	....
Louisiana	5	....	....	....	[a] 360	284	62	467	110
Maine	20	....	402	....	402	46	12	....	....
Maryland	20	....	321	....	321	....	....	....	....
Mississippi	20	....	47	....	47	70	12	....	....
New Hampshire	20	....	4	....	4	....	....	....	....
New York	20	....	649	....	649	56	17	....	....
North Carolina	20, 100	66	243	....	309	132	44	70	5
Pennsylvania	20	....	629	....	629	78	36	....	....
Tennessee	20, 100	142	....	66	208	....	....	....	....
Virginia	50, 100	425	....	35	460	96	21	....	....
West Virginia	50	....	....	957	957	97	29	....	....
	....	633	2,545	1,308	4,846	994	268	537	115

[a] 360 square miles in Louisiana for publication on the scale of 1:24,000.

DETAILS OF WORK BY STATES.

Alabama.—The resurvey of the southeast quarter of the Bessemer 30-minute quadrangle, constituting the Columbiana quadrangle, in Shelby and Chilton counties, Ala., was completed by W. J. Lloyd, F. E. Hale, jr., C. K. Alexander, and F. L. Kendig, the total area mapped being 250 square miles, for publication on the scale of 1:62,500, with a contour interval of 50 feet. For the control of this area William Oram ran 64 miles of primary levels and established 20 permanent bench marks.

Georgia.—The survey of the Milledgeville quadrangle, in Baldwin and Hancock counties, Ga., was completed by Oscar Jones, J. I. Gayetty, and L. K. Rushing, the total area mapped being 250 square miles, for publication on the scale of 1:62,500, with a contour interval of 20 feet. For the control of this area F. W. Farnsworth ran 71 miles of primary levels and established 15 permanent bench marks.

Louisiana.—Work was continued under the allotment of $20,000 made by the president of the board of commissioners of the fifth Louisiana levee district for the beginning of cooperative topographic surveys in the Tensas basin, $6,700 being allotted by the United States Geological Survey. The survey of the Mound and Lake Providence quadrangles and parts of the Millikens Bend, Tallulah, Delta Bridge, Baxter Bayou, Millikin, Ashton Bridge, Vidalia, Lake Bruen, Sycamore Landing, Wilson Point, Delta Point, and Longwood quadrangles was completed, the total area mapped being 360 square miles, for publication on the scale of 1:24,000, with a contour interval of 5 feet. This work was done by W. N. Vance, Olinus Smith, H. W. Peabody, L. L. Lee, J. M. Rawls, R. A. Kiger, and E. V. Perkinson and is included in portions of Madison, East and West Carroll, Tensas, and Concordia parishes. For the control of these areas W. H. Gray and T. A. Green ran 284 miles of primary levels, in connection with which 62 permanent bench marks were set, and C. B. Kendall ran 467 miles of primary traverse and set 110 permanent marks.

Maine.—For the continuation of cooperative topographic surveys in Maine the State Survey Commission allotted $3,500 and the United States Geological Survey allotted a like sum. The survey of the Fryeburg quadrangle, in Cumberland and Oxford counties, and the Kezar Falls quadrangle, in Oxford, York, and Cumberland counties, Me., and Carroll County, N. H., was completed, and that of the Livermore quadrangle, in Androscoggin and Kennebec counties, was begun by Hersey Munroe, R. H. Reineck, and Charles Hartmann, jr., the total area mapped being 406 square miles, of which 4 square miles was in New Hampshire, for publication on the scale of 1: 62,500, with a contour interval of 20 feet. For the control of the Fryeburg and

Livermore quadrangles E. B. Hillegass and Mr. Hartmann ran 46 miles of primary levels and established 12 permanent bench marks. For the control of the Buckfield, Bethel, and Livermore quadrangles, in Androscoggin, Oxford, and Kennebec counties, E. L. McNair occupied 10 triangulation stations and marked 7. Secondary control for the Waldoboro quadrangle, in Knox and Lincoln counties, was commenced by Ray Purington.

Maryland.—For the continuation of cooperative topographic surveys in Maryland the state geologist allotted $3,000 and the Federal Survey $4,000. The survey of the Taneytown and Emmitsburg quadrangles, in Carroll, Frederick, and Washington counties, Md., and Adams and Franklin counties, Pa., was completed and that of the Hagerstown quadrangle was commenced, the total area mapped being 402 square miles, for publication on the scale of 1: 62,500, with a contour interval of 20 feet. Of this area 81 square miles lies in Pennsylvania, and the mapping of that portion was paid for from funds of that State. For the control of the Williamsport quadrangle, in Washington, Franklin, and Berkeley counties, G. T. Hawkins occupied 4 triangulation stations and marked 2. Secondary control on this quadrangle was continued by R. H. Reineck, Jay De Puy, P. W. McMillen, and Olinus Smith.

Mississippi.—The survey of the Iuka quadrangle, in Tishomingo County, Miss., was commenced by C. C. Gardner, the area mapped being 47 square miles, for publication on the scale of 1: 62,500, with a contour interval of 20 feet. For the control of this quadrangle William Oram ran 70 miles of primary levels and established 12 permanent bench marks.

New York.—The state engineer and surveyor of New York allotted $7,000 for the continuation of cooperative topographic surveys in the State and the Federal Survey allotted a like sum for the same purpose. The survey of the Delhi and Hartwick quadrangles, in Otsego and Delaware counties, and of the Antwerp and Hammond quadrangles, in Jefferson and St. Lawrence counties, was completed, and that of the Canton quadrangle, in St. Lawrence County, was commenced, the total area mapped being 649 square miles, for publication on the scale of 1: 62,500, with a contour interval of 20 feet. This work was done by R. D. Cummin, C. E. Cooke, R. C. McKinney, W. H. S. Morey, J. R. Haswell, and J. M. Whitman. For the control of the Hartwick quadrangle A. F. McNair ran 56 miles of primary levels and established 17 permanent bench marks. Secondary control for the New Berlin quadrangle, in Chenango and Otsego counties, was completed by L. C. Fletcher.

North Carolina.—The state geologist of North Carolina allotted $2,500 and the Federal Survey a like sum for the continuation of cooperative topographic surveys. A traverse survey of Cleveland

and Franklin counties, on the scale of 1: 24,000, was completed by R. L. Harrison, M. W. Gray, and C. S. Wells. In addition to the cooperative work, the survey of the Lincolnton quadrangle, in Lincoln, Gaston, and Cleveland counties, was completed by Mr. Harrison, J. D. Forster, and J. B. Metcalfe, the area mapped being 243 square miles, for publication on the scale of 1: 62,500, with a contour interval of 20 feet. For the control of this area G. T. Hawkins ran 70 miles of primary traverse and set 5 permanent marks, and F. P. Hoover ran 132 miles of primary levels and established 44 permanent bench marks. The portion of the Lincolnton quadrangle that lies in Cleveland County was mapped in cooperation with the state geologist.

Pennsylvania.—The Topographic and Geological Survey Commission of Pennsylvania allotted $4,238 for the continuation of the cooperative topographic survey of the State and the United States Geological Survey allotted a like sum for the same purpose. The survey of the Hamburg quadrangle, in Berks, Lehigh, and Carbon counties, and the Franklin quadrangle, in Venango County, was completed, and that of the Hilliards quadrangle, in Butler and Venango counties, and the McCalls Ferry quadrangle, in Lancaster and York counties, was begun, the total area mapped being 548 square miles, for publication on the scale of 1: 62,500, with a contour interval of 20 feet. This work was done by R. C. McKinney, S. P. Floore, R. H. Reineck, R. A. Kiger, W. N. Vance, and Duncan Hannegan. For the control of the McCalls Ferry quadrangle C. H. Semper ran 78 miles of primary levels and established 36 permanent bench marks. (See also Maryland, above.)

Tennessee.—The resurvey of the Pikeville 30-minute quadrangle (Tenn.) was continued by Oscar Jones and J. I. Gayetty and resulted in the completion of the work on the Pikeville special quadrangle, in Bledsoe and Rhea counties, the area mapped being 66 square miles, for publication on the scale of 1: 62,500, with a contour interval of 20 feet.

Tennessee-North Carolina.—J. I. Gayetty continued the revision of the Mount Guyot quadrangle, completing 4 square miles in Haywood County, N. C., and 14 square miles in Cocke and Sevier counties, Tenn., for republication on the scale of 1: 125,000, with a contour interval of 100 feet.

Virginia.—For cooperative topographic surveys in Virginia the state geologist and the United States Geological Survey each allotted $1,750. A traverse survey of the Virgilina district, in Halifax, Charlotte, and Mecklenburg counties, was completed by T. Foster Slaughter on the scale of 1: 24,000. (See also West Virginia, below.)

Virginia-Tennessee-North Carolina.—The resurvey of the Abingdon quadrangle, in Smyth, Washington, Russell, and Tazewell counties, Va., Sullivan and Johnson counties, Tenn., and Ashe County, N. C., was completed by Duncan Hannegan, R. A. Kiger, H. W. Peabody, J. D. Forster, and C. C. Gardner, the total area mapped being 615 square miles, for publication on the scale of 1:125,000, with a contour interval of 100 feet. For the control of this area J. B. Metcalfe ran 96 miles of primary levels and established 21 permanent bench marks. Of the area mapped, 425 square miles lies in Virginia, 62 in North Carolina, and 128 in Tennessee.

West Virginia.—For the continuation of cooperative topographic surveys in West Virginia the state geologist allotted $15,000, which was met by a like sum from the Federal Survey. The resurvey of areas previously mapped resulted in the completion of the survey of the Madison and Peytona quadrangles, in Kanawha, Boone, Lincoln, and Logan counties, and the Pocahontas special and Gilbert quadrangles, in Mercer, McDowell, and Wyoming counties, W. Va., and Tazewell County, Va.; and in the completion of parts of the Welch and Pineville quadrangles, in McDowell and Wyoming counties, and the Matewan quadrangle, in Mingo and Logan counties, the total area mapped being 992 square miles, for publication on the scale of 1:62,500, with a contour interval of 50 feet. This work was done by F. E. Matthes, E. P. Davis, S. E. Taylor, F. O. Leonard, E. I. Ireland, C. S. Wells, A. J. Dailey, C. C. Gardner, J. D. Forster, Fred McLaughlin, Oscar Jones, J. H. Wilson, J. B. Metcalfe, R. A. Ireland, R. H. Kilmer, and J. S. Nurnberger. Of the Pocahontas special quadrangle, 35 square miles lies in Virginia, and the mapping of this portion was paid for from federal funds. For the control of the Gilbert quadrangle T. A. Green and J. H. Wilson ran 56 miles of primary levels and established 16 permanent bench marks, and for the control of the Pineville quadrangle J. B. Metcalfe ran 41 miles of primary levels and established 13 permanent bench marks, For the control of the Warfield quadrangle, in Mingo and Wayne counties, R. C. Seitz occupied 4 triangulation stations and marked 2.

OFFICE WORK.

The drafting of the following sheets was completed: Columbiana, Ala.; Milledgeville, Ga.; Ellsworth, Me.; Fryeburg, Me.-N. H.; Neversink, Antwerp, Monticello, and Delhi, N. Y.; Lincolnton, N. C.; Emmitsburg and Taneytown, Md.-Pa.; Hamburg, Franklin, and Butler, Pa.; Mound and Lake Providence, La.; Pikeville special, Tenn.; Abingdon, Va.-N. C.-Tenn.; Pocahontas special, Va.-W. Va.; and Peytona, Madison, and Gilbert, W. Va.

Progress in the drafting of additional sheets was made as follows: Millikens Bend, Tallulah, and Delta Bridge, La., 80 per cent; Baxter Bayou, La., 66 per cent; Millikin, La., 50 per cent; Ashton Bridge, La., 35 per cent; Vidalia, La., 40 per cent; Lake Bruen, La., 30 per cent; Sycamore Landing, Wilson Point, and Delta Point, La., 20 per cent; Longwood, La., 5 per cent; Kezar Falls, Me., 50 per cent;

Hartwick, N. Y., 70 per cent; Hammond, N. Y., 65 per cent; Mount Guyot, Tenn., 60 per cent; Matewan, W. Va., 66 per cent; Welch, W. Va., 25 per cent; Williamson and Pineville, W. Va., 10 per cent.

In the triangulation and computing section the following computations were made:

Primary level circuits in the Columbiana quadrangle (Ala.) were adjusted.

Primary level circuits in the Milledgeville quadrangle (Ga.) were adjusted.

Primary level circuits were adjusted and latitudes, departures, and geographic positions were computed in the area embraced by the Tensas drainage district (La.).

Primary level circuits run by the water-resources branch of the Survey along the east and west forks of Penobscot River, in Penobscot and Piscataquis counties, Me., and level circuits in the Bethel, Fryeburg, Kezar Falls, and Rumford quadrangles (Me.) were adjusted.

Latitudes, departures, and geographic positions in the Hagerstown quadrangle (Md.-Pa.) and geodetic positions and distances in the Williamsport quadrangle (Md.-W. Va.-Pa.) were computed.

Primary level circuits in the Iuka quadrangle (Miss.-Ala.-Tenn.) were adjusted.

Primary level circuits in the Bath and New Berlin quadrangles (N. Y.) were adjusted.

Precise level circuits in the Greensboro quadrangle (N. C.) and primary level circuits in the Lincolnton quadrangle (N. C.) were adjusted. Latitudes, departures, and geographic positions in the Lincolnton quadrangle were computed.

Primary level circuits in the Pikeville quadrangle (Tenn.) were adjusted.

Precise level circuits in the Covington quadrangle (Va.-W. Va.) and primary level circuits in the Abingdon quadrangle (Va.-N. C.-Tenn.) were adjusted.

Distances and positions in the Bald Knob, Eccles, Mullen, Pineville, and Wayne (W. Va.), Iaeger, Oceana, and Welch (Va.-W. Va.), and Gilbert and Matewan (W. Va.-Va.-Ky.) quadrangles were computed. Primary level circuits in the Iaeger, Pocahontas, and Welch (W. Va.-Va.) and Gilbert and Matewan (W. Va.-Va.-Ky.) quadrangles were adjusted.

Level lists covering the work done in the areas embraced by the following groups of States were assembled, computations and readjustments being made where necessary, and sent to the editor for publication as bulletins, with the exception of the last group, which is not yet completed: Alabama, Georgia, North Carolina, South Carolina, and Tennessee (Bulletin 441); Maine, New Hampshire, and Vermont (Bulletin 437); Delaware, District of Columbia, Maryland, and Virginia (Bulletin 434); and Arkansas, Louisiana, and Mississippi.

CENTRAL DIVISION.

FIELD WORK.

SUMMARY.

During the season topographic mapping was carried on in Illinois, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, and Ohio. The work comprised the survey of 20 quadrangles and 1 special area and the resurvey of 1 special area. In addition, 7 quadrangles, 1 special area, and 2 river projects were partly surveyed. The total new area mapped was 4,923 square miles—4,656 for publication on the scale of 1:62,500 and 267 for publication on the scale of 1:24,000. The area resurveyed was 14 square miles, for publication on the scale of 1:24,000. In connection with this work 1,673 miles of primary levels were run and 424 permanent bench marks were established.

Primary triangulation and primary traverse were carried on at different times by five parties, the work being distributed over portions of Illinois, Kentucky, Minnesota, Missouri, and Ohio. The total area covered by this primary control was about 9,600 square miles, of which 6,800 were controlled by primary traverse, 1,469 miles being run and 132 permanent marks set. Seventy triangulation stations were occupied, 58 were marked, and 110 were intersected. The result of this work was to make control available in thirty-six 15-minute quadrangles and two river projects.

Topographic surveys in Central division from July 1, 1909, to June 30, 1910.

State.	Contour interval.	For publication on scale of—			Total area surveyed.	Levels.		Primary traverse.	
		1:62,500.	1:24,000.			Distance run.	Bench marks.	Distance run.	Permanent marks.
		New.	New.	Resurvey.					
	Feet.	*Sq. miles.*	*Sq. miles.*	*Sq. miles.*	*Sq. miles.*	*Miles.*		*Miles.*	
Illinois	5, 20	1,034	102		1,136	432	97	347	30
Iowa	20	182			182	90	20		
Kansas	20			14	14				
Kentucky	20	329			329	127	38		
Michigan	20	274	165		439	46	12	74	6
Minnesota	10	495			495	281	112		
Missouri	10, 20	320			320	123	24	126	16
Ohio	20	2,022			2,022	574	121	922	80
		4,656	267	14	4,937	1,673	424	1,469	132

DETAILS OF WORK BY STATES.

Illinois.—The governor of Illinois allotted $17,500 for the continuation of cooperative topographic surveys in the State and the United States Geological Survey allotted $12,500 for the same purpose. The survey of Apple River and the Illinois portion of the Galena quadrangle, in Jo Daviess County; the Hennepin and Lasalle quadrangles, in Bureau, Putnam, and Lasalle counties; and the New Athens quadrangle, in St. Clair and Monroe counties, was completed, the total area mapped being 1,034 square miles, for publication on the scale of 1:62,500, with a contour interval of 20 feet. This work was done by J. H. Renshawe, Frank Tweedy, A. M. Walker, J. F. McBeth, R. T. Evans, B. A. Jenkins, J. De Puy, and G. R. Hoffman. The survey of the Embarrass River project, in Jasper, Crawford, and Lawrence counties, was begun by L. L. Lee and H. W. Peabody, and that of the Spoon River project, in Fulton County, by C. C. Gardner. The total area mapped was 102 square miles, for publication on the scale of 1:24,000, with a contour interval of 5 feet, and for its control C. B. Kendall ran 293 miles of primary traverse and set 27 permanent marks, and Mr. Peabody and S. R. Archer ran 79 miles of primary levels and set 6 permanent bench marks. For the control of the Lincoln quadrangle, in Logan County, and the Canton, Havana, Macomb, Vermont, Colchester, Carthage, and Keokuk quadrangles, in Fulton, Hancock, McDonough, and Schuyler counties, E. M. Bandli ran 263 miles of primary levels and established 70 permanent bench marks. For the control of the Milan quadrangle, in Rock Island and Mercer counties, G. E. Heebink ran 90 miles of primary levels and established 21 permanent bench marks. For the control of the Kimswick and Waterloo quadrangles, in Monroe and St. Clair counties, J. R. Ellis ran 54 miles of primary traverse and set 3 permanent marks. Secondary control for the Lincoln quadrangle, in Logan County; the Bridgeport quadrangle, in Lawrence, Edwards, Richland, and Wabash counties; and the Crystal City and Renault quadrangles, in Monroe and Randolph counties, was begun by R. C. Seitz.

Iowa.—The state geologist of Iowa allotted $1,750 for cooperative topographic surveys in Iowa and the Federal Survey allotted a like sum for the same purpose. The survey of the Knoxville quadrangle, in Marion County, and parts of the Pella quadrangle, in Marion and Mahaska counties, was completed by M. Hackett, the total area mapped being 182 square miles, for publication on the scale of 1:62,500, with a contour interval of 20 feet. For the control of the Pella quadrangle, G. E. Heebink ran 90 miles of primary levels, in connection with which 20 permanent bench marks were established.

Kansas.—The resurvey of the Fort Leavenworth quadrangle, in Jefferson, Atchison, and Leavenworth counties, Kans., was completed by J. G. Staack and E. L. Hain, the total area mapped being 14 square miles, for publication on the scale of 1:24,000, with a contour interval of 20 feet.

Kentucky.—For the continuation of cooperative topographic surveys within Kentucky, the state geologist allotted $5,000 and the Federal Survey allotted a like sum. The survey of the Dawson

Springs quadrangle, in Hopkins, Christian, and Caldwell counties, was completed by C. L. Sadler and F. B. Barrett, and that of the Monticello quadrangle, in Wayne, Russell, and Pulaski counties, was commenced by J. F. McBeth, the total area mapped being 258 square miles, for publication on the scale of 1:62,500, with a contour interval of 20 feet. For the control of the Dawson Springs quadrangle S. R. Archer ran 68 miles of primary levels and established 21 permanent bench marks. For the control of the Laynesville and Inez quadrangles, in Pike, Floyd, Martin, Lawrence, and Johnson counties, and the Ewing, Soldier, Rectorville, Flemingsburg, and Mount Sterling quadrangles, in Fleming, Nicholas, Bath, Lewis, Rowan, Mason, and Montgomery counties, E. L. McNair and R. C. Seitz occupied 25 triangulation stations and marked 21. For the control of the Paintsville quadrangle, in Johnson, Lawrence, Morgan, and Magoffin counties, and the Inez and Louisa quadrangles, Mr. Archer ran 59 miles of primary levels and established 17 permanent bench marks. In addition to the cooperative work, the survey of the Kentucky portion of the Kosmosdale quadrangle, in Jefferson and Bullitt counties, was completed by C. D. S. Clarkson, the total area mapped being 71 square miles, for publication on the scale of 1:62,500, with a contour interval of 20 feet.

Michigan.—For the continuation of cooperative topographic surveys in Michigan the state geologist and the United States Geological Survey each allotted $2,000. The survey of the Mason quadrangle, in Ingham County, was completed, and that of the Lansing quadrangle, in Ingham and Eaton counties, was commenced by C. D. S. Clarkson, the total area mapped being 274 square miles, for publication on the scale of 1:62,500, with a contour interval of 20 feet. For the control of the Lansing quadrangle J. R. Ellis ran 74 miles of primary traverse and set 6 permanent marks and L. D. Townsend ran 46 miles of primary levels and set 12 permanent bench marks. In addition to the cooperative work, the survey of the Calumet special quadrangle, in Keweenaw and Houghton counties, was completed by A. M. Walker, the area mapped being 165 square miles, for publication on the scale of 1:24,000, with a contour interval of 20 feet.

Minnesota.—Work was continued in Minnesota under the allotment of $10,000 made by the state drainage engineer, which was met by an allotment of $5,000 by the Federal Survey. The survey of the Barrett and Herman quadrangles, in Grant, Douglas, and Stevens counties, was completed, and that of the Morris quadrangle, in the same counties, was commenced, the total area mapped being 495 square miles, for publication on the scale of 1:62,500, with a contour interval of 10 feet. This work was done by J. G. Staack, O. H. Nelson, E. L. Hain, W. B. Newhall, and C. S. Stewart. For the control of this area, as well as for the Chokio, Ashby, and Wendell quadrangles, in the same counties, E. M. Douglas and C. S. Stewart occupied 45 triangulation stations, marked 37, and located 110 secondary points and three-point stations, and C. R. Beckler and G. E. Halstead ran 281 miles of primary levels and established 112 permanent bench marks, secondary control being run by R. C. Seitz.

Missouri.—For the continuation of cooperative topographic surveys in Missouri the state geologist and the United States Geological Survey each allotted $4,500. The survey of the Rolla quadrangle, in Phelps and Dent counties, was completed, and that of the Aurora special quadrangle, in Lawrence, Jasper, and Newton counties, was commenced by H. H. Hodgeson, F. W. Hughes, C. H. Swift, and Paul Robins, the total area mapped being 320 square miles, for publication on the scale of 1:62,500, with contour intervals of 20 and 10 feet, respectively. For the control of the Rolla quadrangle Mr. Swift ran 17 miles of primary levels and established 4 permanent bench marks, and for the control of the Aurora special area J. R. Ellis ran 126 miles of primary traverse and set 16 permanent marks and G. P. Featherstone ran 106 miles of primary levels and established 20 permanent bench marks.

Ohio.—The governor of Ohio allotted $15,000 for the continuation of the cooperative topographic survey of the State and a like sum was set apart for the same purpose by the United States Geological Survey. The survey of the Delphos, Spencerville, Loramie, and Covington quadrangles, in Van Wert, Allen, Putnam, Auglaize, Shelby, Miami, and Darke counties, and the Cumberland, Caldwell, Summerfield, Uhrichsville, Canal Dover, and Antrim quadrangles, in Noble, Guernsey, Muskingum, Washington, Morgan, Monroe, Tuscarawas, Harrison, Carroll, Coshocton, Holmes, and Stark counties, was completed, and that of the Laurelville quadrangle, in Vinton, Hocking, Ross, and Pickaway counties, and the Carrollton quadrangle, in Carroll, Stark, and Columbiana counties, was commenced, the total area mapped being 2,022 square miles, for publication on the scale of 1:62,500, with a contour interval of 20 feet. This work was done by J. H. Jennings, C. W. Goodlove, O. H. Nelson, M. Hackett, H. P. Hancock, L. R. Ebert, H. R. Sargent, J. A. Duck, Charles Hartmann, jr., Fred Graff, jr., and Horace Rayner. For the control of these areas 461 miles of primary levels were run and 95 permanent bench marks were established by C. L. Beckler, H. B. Hoel, N. E. Ballmer, and C. B. Mincks. For the control of the New Comerstown, Millersburg, and Navarre quadrangles, in Tuscarawas, Coshocton, Holmes, Wayne, and Stark counties, E. C. Bibbee and C. B. Mincks ran 60 miles of primary levels and established 10 permanent bench marks. For the control of the Jackson quadrangle, in Jackson and Vinton counties, C. B. Shaw and C. E. Mills ran 53 miles of primary levels and established 16 permanent bench marks. For the control of the Lebanon, Waynesville, Xenia, Sabina, Jeffersonville, Greenfield, Roxabel, Bainbridge, Era, Piketon, Batavia, Hillsboro, Lynchburg, Circleville, and Millersburg quadrangles, in Warren, Green, Clinton, Fayette, Highland, Ross, Pike, Adams, Pickaway, Clermont, Brown, Fairfield, Holmes, and Wayne counties, and the Scioto, Oak Hill, Jackson, Greenup, Otway, Peebles, Portsmouth, West Union, Vanceburg, Manchester, Georgetown, and Bethel quadrangles, in Scioto, Jackson, Lawrence, Adams, Brown, and Clermont counties, J. R. Ellis ran 922 miles of primary traverse and established 80 permanent marks.

OFFICE WORK.

The drafting of the following sheets was completed: Knoxville, Iowa; Hennepin, Stockton, New Athens, La Salle, Ill.; Leavenworth special, Kans.-Mo.; Dawson Springs, Ky.; Mason and Calumet special, Mich.; Herman and Barrett, Minn.; Cumberland, Antrim, Oxford, Caldwell, Summerfield, Covington, Uhrichsville, Delphos, Spencerville, Loramie, and Cambridge, Ohio; Rolla, Mo.

Progress in the drafting of additional sheets was made as follows: Easton, Kans., 50 per cent; Monticello, Kosmosdale, and Prospect, Ky., 50 per cent; Pella, Iowa, 50 per cent; Galena, Ill.-Iowa, 80 per cent; DeQueen, Ark., 40 per cent; Aurora special, Mo., 50 percent; Lansing, Mich., 25 per cent; Canal Dover, Ohio, 75 per cent.

The following sheets were completely adjusted: Carrolton, Ohio; Lansing, Mich.; and Bridgeport, Ill.

In the triangulation and computing section the following computations were made:

Latitudes, departures, and geographic positions were computed in the Eaton, Lincoln, Rosehill, Sparta, and Waterloo (Ill.) and Crystal City, Kimmswick, and Renault (Ill.-Mo.) quadrangles. Primary level circuits in the Canton, Havana, Lincoln, and Milan quadrangles (Ill.) were adjusted.

Latitudes, departures, and geographic positions in the Vincennes quadrangle (Ind.-Ill.) were computed.

Primary level circuits in the Easton quadrangle (Kans.) were adjusted.

Latitudes, departures, and geographic positions were computed in the Horsebranch, Morgantown, and Rochester quadrangles (Ky.). Geodetic positions and distances in the Ewing, Flemingsburg, Hazard, Laynesville, Mount Sterling, Soldier, and Williamson (Ky.), Inez, Warfield, and Whitesburg (Ky.-W. Va.), and Vanceburg (Ky.-Ohio) quadrangles were computed. Primary level circuits in the Dawson Springs and White Plains quadrangles (Ky.) were adjusted.

Primary level circuits were adjusted and latitudes, departures, and geographic positions were computed in the Lansing quadrangle (Mich.).

Primary level circuits in the area embraced by the Red Lake district and in the Barrett, Herman, Morris, and Wendell quadrangles (Minn.) were adjusted. Geodetic distances and positions in the Ashby, Barrett, Chokio, Herman, Morris, and Wendell quadrangles (Minn.) were computed.

Primary level circuits were adjusted and latitudes, departures, and geographic positions were computed in the Aurora special quadrangle (Mo.). Primary level circuits in the Rolla quadrangle (Mo.) were adjusted.

Latitudes, departures, and geographic positions were computed in the Bainbridge, Batavia, Blanchester, Chillicothe, Circleville, Era, Georgetown, Greenfield, Hillsboro, Jackson, Jeffersonville, Lebanon, Lynchburg, Mason, Mount Sterling, Oak Hill, Octa, Otway, Peebles, Piketon, Portsmouth, Roxabell, Sabina, Springfield, Waynesville, West Union, and Xenia (Ohio) and East Cincinnati, Greenup, and Scioto (Ohio-Ky.) quadrangles. Primary level circuits in the Brinkhaven, Canal Dover, Carrollton, Coshocton, Covington, Delphos, Loramie, Millersburg, New Comerstown, Spencerville, and Uhrichsville quadrangles (Ohio) were adjusted.

Primary level circuits in the Marathon, Waterloo, and Wausau quadrangles (Wis.) were adjusted.

Level lists covering the work done in Illinois (Bulletin 421) and Ohio (Bulletin 411) were published.

ROCKY MOUNTAIN DIVISION.

FIELD WORK.

SUMMARY.

During the season topographic mapping was carried on in Colorado, Montana, New Mexico, North Dakota, Oklahoma, Texas, and Wyoming. This work comprised the survey of 16 quadrangles and 1 national forest and the revision of 2 quadrangles. In addition, 1 national forest was partly surveyed. The total new area mapped was 9,504 square miles—2,766 for publication on the scale of 1:250,000, 6,245 for publication on the scale of 1:125,000, and 493 for publication on the scale of 1:31,680. The area resurveyed was 921 square miles, for publication on the scale of 1:125,000. In connection with this work, 1,389 miles of primary levels were run and 422 permanent bench marks were established. Profile surveys of 2 rivers were also made, the distance traversed being 157 miles.

Primary triangulation and primary traverse were carried on at different times by five parties, the work being distributed over portions of Colorado, New Mexico, and Texas. The total area covered by this primary control was about 4,800 square miles, of which 1,800 were controlled by primary traverse, 684 miles being run and 204 permanent marks set. Twenty-two triangulation stations were occupied and 31 marked. The result of this work was to make control available in one 30-minute quadrangle, one national forest, and three river projects.

Topographic surveys in Rocky Mountain division from July 1, 1909, to June 30, 1910.

State.	Contour interval.	For publication on scale of—			Total area surveyed.	Levels.		Primary traverse.	
		1:250,000.	1:125,000.			Distance run.	Bench marks.	Distance run.	Permanent marks.
		New.	New.	Resurvey.					
	Feet.	*Sq. miles.*	*Sq. miles.*	*Sq. miles.*	*Sq. miles.*	*Miles.*		*Miles.*	
Colorado	100		1,221		[a] 1,221	180	44		
Idaho	100		86		86				
Montana	20, 100, 200	650	2,615		[b] 3,265	140	38		
New Mexico	100, 200	885	848		1,733	158	42		
North Dakota	50		741		741	29	10		
Oklahoma	50			921	921				
Texas	5				[c] 493	612	224	684	204
Wyoming	100, 200	1,231	734		1,965	270	64		
		2,766	6,245	921	10,425	1,389	422	684	204

[a] 105 square miles mapped by Reclamation Service and published on scale of 1:125,000.
[b] 944 square miles mapped by General Land Office and published on scale of 1:125,000.
[c] 493 square miles in Texas for publication on scale of 1:31,680.

DETAILS OF WORK BY STATES.

Colorado.—The survey of the Mount Jackson quadrangle, in the Holy Cross National Forest, in Eagle, Pitkin, Gunnison, and Chaffee counties, and the Montrose quadrangle, in Montrose, Gunnison, Ouray, and San Miguel counties, Colo., was completed by Gilbert Young, E. R. Bartlett, S. T. Penick, J. A. Burriss, W. M. Kent, and Stanley Hargen. The work on the Aspen 15-minute quadrangle, which is included in the Mount Jackson quadrangle, was revised by E. I. Ireland, and that on the Ouray 15-minute quadrangle, which is included in the Montrose quadrangle, was revised by E. R. Bartlett, as well as 105 square miles of Reclamation Service surveys. The total new area mapped was 1,116 square miles, for publication on the scale of 1:125,000, with a contour interval of 100 feet. For the control of the Montrose quadrangle Mr. Young occupied and marked 6 triangulation stations and for the control of both the Montrose and the Mount Jackson quadrangles F. J. McMaugh ran 180 miles of primary levels and established 44 permanent bench marks. A profile survey of Gunnison River, in Gunnison, Summit, and Grand counties, was made by Stanley Hargen, the total distance traversed being 120 miles.

Montana.—The survey of the Thibideau Lake and Zurich quadrangles, in Chouteau County, Mont., was completed by W. L. Miller, Basil Duke, and G. W. Lucas, the total area mapped being 769 square miles, the southern half of these quadrangles having been previously mapped for publication on the scale of 1:62,500. For the control of these areas W. R. Winstead ran 93 miles of primary levels and established 25 permanent bench marks. The survey of the Cutbank and Blackfoot quadrangles, in Teton County, was completed by R. W. Berry, H. G. Parry, and Conrad Ecklund, the total area surveyed being 634 square miles. The remainder of these quadrangles, consisting of 944 square miles, is included within the Blackfeet Indian Reservation, already topographically mapped by the General Land Office, in connection with its subdivision surveys, the results of which were incorporated in the maps. All of the above work was for publication on the scale of 1:125,000, with a contour interval of 20 feet. For the control of the Cutbank quadrangle Mr. Parry ran 47 miles of primary levels and established 13 permanent bench marks. A profile survey of Judith River, in Fergus County, was made by C. A. Leonard, the total distance traversed being 37 miles.

Montana-Idaho.—The survey of the Missoula quadrangle, in the Lolo National Forest, in Missoula, Ravalli, Flathead, and Clearwater counties, Mont., and Idaho County, Idaho, was completed by Lee Morrison and W. J. Forster, the area mapped being 354 square miles, for publication on the scale of 1:125,000, with a contour interval of 100 feet; 86 square miles of this area is in Idaho.

New Mexico.—The survey of the Mogollon quadrangle, in Grant and Socorro counties, N. Mex., was completed by A. B. Searle, A. P. Meade, jr., and R. S. Van Atta, the total area mapped being 848 square miles, for publication on the scale of 1:125,000, with a contour interval of 100 feet. The survey of parts of the Alamo National Forest, in Otero, Chaves, and Lincoln counties, was completed by V. H. Manning, J. H. Wilke, and K. W. Trimble, the area mapped being 885 square miles, for publication on the scale of 1:250,000, with a contour interval of 200 feet. For the control of this forest R. B. Robertson occupied 16 triangulation stations and marked 25, and Mr. Trimble ran 158 miles of primary levels and established 42 permanent bench marks.

North Dakota.—The survey of the Ray quadrangle, in Williams and McKenzie counties, N. Dak., was completed by G. S. Smith, J. H. Van Wagenen, Conrad Ecklund, Chester Irvine, and C. A. Leonard, the total area mapped being 741 square miles, for publication on the scale of 1:125,000, with a contour interval of 50 feet. For the control of this area Messrs. Van Wagenen and Leonard ran 29 miles of primary levels and established 10 permanent bench marks.

Oklahoma.—The revision of the culture on the Sanbois and Sallisaw quadrangles, in Sequoyah, Haskell, Latimer, Pittsburg, Muskogee, and LeFlore counties, Okla., was completed by C. P. Janerson, D. B. Penick, and C. J. Ballinger, the total area revised being 921 square miles, for publication on the scale of 1:125,000, with a contour interval of 50 feet.

Texas.—The governor of Texas allotted $20,000 for the initiation of cooperative topographic surveys in that State and the United States Geological Survey allotted a like sum for the same purpose. Work was begun in the Brazos and Little River valleys, and also in the valley of the East Fork of Trinity River. The survey of the Howth, Courtney, and Navasota quadrangles, in Burleson, Brazos, Grimes, and Washington counties, the Buckholtz quadrangle, in Milan County, and the Rockwall and Barnesbridge quadrangles, in Rockwall, Kaufman, and Collin counties, was completed, the total area mapped being 493 square miles, for publication on the scale of 1:31,680, with a contour interval of 5 feet. This work was done by Gilbert Young, T. F. Slaughter, S. P. Floore, A. P. Meade, B. A. Jenkins, Charles Hartmann, jr., Fred Graff, jr., R. T. Evans, and S. T. Penick. For the control of these areas F. J. McMaugh, P. W. McMillen, and E. L. McNair ran 684 miles of primary traverse and set 204 permanent marks; C. H. Semper, F. H. West, P. W. McMillen, F. Hurst, and E. L. McNair ran 612 miles of primary levels, in connection with which 224 permanent bench marks were established.

Wyoming.—The survey of the Sheridan quadrangle, in Sheridan and Johnson counties, Wyo., was completed by C. E. Cooke, F. H. West, C. A. Leonard, P. W. McMillen, and H. W. Parry, the area mapped being 734 square miles, for publication on the scale of 1:125,000, with a contour interval of 100 feet. For the control of this area F. H. West and C. F. Fisher ran 98 miles of primary levels and established 19 permanent bench marks.

Wyoming-Montana.—The survey of the Shoshone National Forest, in Bighorn County, Wyo., and Carbon, Sweet Grass, and Park counties, Mont., was completed by E. I. Ireland, the area mapped being 650 square miles in Montana and 1,231 square miles in Wyoming, for publication on the scale of 1:250,000, with a contour interval of 200 feet. For the control of this forest Orr Meredith ran 172 miles of primary levels and established 45 permanent bench marks.

OFFICE WORK.

The drafting of the following sheets was completed: Montrose and Mount Jackson, Colo.; Zurich, Thibideau Lake, Blackfoot, Cutbank, and Bear Tooth National Forest, Mont.; Missoula, Mont.-Idaho; Ray, N. Dak.; Sanbois and Sallisaw, Okla.; Sheridan and Shoshone National Forest, Wyo.; Barnesbridge, Rockwall, Howth, Courtney, Navasota, and Buckholtz, Tex.

Progress in the drafting of additional sheets was made as follows: Mogollon, N. Mex., 95 per cent; Alamo National Forest, N. Mex., 75 per cent.

In the triangulation and computing section the following computations were made:

Primary level circuits in the Carbondale, Glenwood Springs, Leadville, Montrose, Mount Jackson, San Cristobal, and Uncompahgre quadrangles (Colo.) were adjusted.

Primary level circuits in the Brocton, Browning, Cutbank, Nashua, Pacific Junction, Plentywood, Poplar, Scobey, Wolf Point, and Zurich (Mont.) and Missoula (Mont.-Idaho) quadrangles were adjusted.

Primary level circuits in the Magdalena quadrangle (N. Mex.) were adjusted and geodetic distances and positions in the Alamogordo quadrangle (N. Mex.) were computed.

Primary level circuits in the Ray quadrangle (N. Dak.) were adjusted.

Primary level circuits were adjusted and latitudes, departures, and geographic positions were computed in the Brazos River, Little River, and Trinity River basins (Tex.).

Primary level circuits in the Shoshone National Forest (Wyo.) were adjusted.

Level lists were revised for the States of Colorado, Oklahoma, Montana, Wyoming, Texas, Utah, Nebraska, and South Dakota.

PACIFIC DIVISION.

FIELD WORK.

SUMMARY.

During the season topographic mapping was carried on in Arizona, California, Idaho, Nevada, Oregon, Utah, Washington, and Wyoming. This work comprised the survey of 27 quadrangles and 1 national park and the revision of 1 special area. In addition, 15 quadrangles, 3 national forests, and 2 special areas were partly surveyed. The total new area mapped was 15,476 square miles—9,433 for publication on the scale of 1:250,000, 4,793 for publication on the scale of 1:125,000, 1,215 for publication on the scale of 1:62,500, and 35 for publication on the scale of 1:45,000. The area resurveyed was 855 square miles—847 for publication on the scale of 1:31,680 and 8 for publication on the scale of 1:30,000. In connection with this work, 1,210 miles of primary levels were run and 284 permanent bench marks were established. In addition, profile surveys of 3 rivers were made, the distance traversed being 417 miles.

Primary triangulation and primary traverse were carried on at different times by four parties, the work being distributed over portions of California, Oregon, Nevada, and Washington. The total area covered by this primary control was about 6,500 square miles, of which 797 were controlled by primary traverse, 72 miles being run and 3 permanent marks set; 46 triangulation stations were occupied, 24 were marked, and 31 were intersected. The result of this work was to make control available in eighteen 7½-minute quadrangles, two 30-minute quadrangles, one 1-degree quadrangle, and one national park.

Topographic surveys in Pacific division from July 1, 1909, to June 30, 1910.

State.	Contour interval.	For publication on scale of—			Total area surveyed.	Levels.		Primary traverse.	
		1:250,000 (new).	1:125,000 (new).	1:62.500 (new).		Distance run.	Bench marks.	Distance run.	Permanent marks.
	Feet.	*Sq. miles.*	*Sq. miles.*	*Sq. miles.*	*Sq. miles.*	*Miles.*		*Miles.*	
Arizona	100	....	45	....	45	79	20	....	....
California	5, 50, 100, 200	6,432	1,637	114	[a] 9,030	466	112	....	....
Idaho	100, 200	565	1,489	58	2,112	186	30	....	....
Nevada	50, 100	1,691	81	....	[b] 1,780	11	3	....	....
Oregon	7, 50, 100	....	299	306	605	123	22	....	....
Utah	50, 100	....	338	....	[c] 373	88	23	....	....
Washington	25, 50, 200	745	746	737	2,228	257	74	72	8
Wyoming	50, 100	....	158	....	158	....	....	....	....
		9,433	4,793	1,215	16,331	1,210	294	72	8

[a] 847 square miles resurvey in California for publication on scale of 1:31,680.
[b] 8 square miles resurvey in Nevada for publication on scale of 1:30,000.
[c] 35 square miles in Utah for publication on scale of 1:45,000.

DETAILS OF WORK BY STATES.

Arizona.—The survey of the Winkleman quadrangle, in Pinal County, Ariz., was commenced by J. E. Blackburn and S. G. Lunde, the total area mapped being 45 square miles, for publication on the scale of 1:125,000, with a contour interval of 100 feet. For the control of this quadrangle L. F. Biggs ran 79 miles of primary levels and established 20 permanent bench marks.

California.—The Department of Engineering of California allotted $14,000 for the continuation of cooperative topographic surveys in that State, and the United States Geological Survey allotted a like sum for the same purpose. In the Sacramento Valley the resurvey of the Marysville and Smartsville quadrangles, in Yuba, Sutter, Colusa, Butte, Glenn, and Tehama counties, was continued and resulted in the mapping of the Browns Valley, Yuba City, Grimes, Butte City, Reeds, Honcut, Lomo, Sutter City, Gridley, Meridian, French Crossing, Palermo, Butte Creek, and Biggs quadrangles and parts of the Smartsville, Nelson, Oroville, Eddys, Marysville Buttes, and Pennington quadrangles, the total area mapped being 847 square miles, for publication on the scale of 1:31,680, with a contour interval of 5 feet. The mapping of the Salinas quadrangle, in Monterey County, was also commenced, the area completed being 114 square miles, for publication on the scale of 1:62,500, with a contour interval of 50 feet. This work was done by W. H. Griffin, W. B. Lewis, J. P. Harrison, T. H. Moncure, A. T. Fowler, Robert Muldrow, M. A. Knock, Bayard Knock, W. H. Barringer, A. J. Ogle, J. L. Lewis, and E. R. Bartlett. For the control of the above-named areas and the Soledad quadrangle 36 triangulation stations were occupied, 16 were marked, and 26 points were intersected by C. F. Urquhart. For the control of the Sacramento Valley areas mentioned above and also for the Dry Creek, Newhard, Dayton, Durham, Clear Creek, Keefers, and Nord quadrangles, as well as for the Soledad quadrangle, L. F. Biggs ran 174 miles of primary levels and established 39 permanent bench marks. In addition to the cooperative work in California, the survey of the Mount Goddard quadrangle, which lies partly in the Sierra National Forest, in Fresno and Mono counties, was completed by G. R. Davis, and that of the Mariposa quadrangle, in Mariposa, Fresno, and Madera counties, was continued by C. H. Birdseye, T. P. Pendleton, and A. J. Ogle, the total area mapped being 622 square miles, for publication on the scale of 1:125,000, with a contour interval of 100 feet. The survey of the Big Bar quadrangle and adjacent territory, in the Trinity National Forest, in Trinity County, was continued by J. P. Harrison, the area mapped being 497 square miles, for publication on the scale of 1:250,000, with a contour interval of 200 feet. The survey of the oil belt, in Stanislaus and San Joaquin counties, and that of the McKittrick quadrangle, in Kern, San Luis Obispo, and Santa Barbara counties, was completed by R. M. La Follette and T. P. Pendleton, the total area mapped being 423 square miles, for publication on the scale of 1:125,000, with a contour interval of 100 feet. For additional control of the Mariposa quadrangle 17 miles of primary levels were run by Sidney Birdseye, and 3 vertical-angle bench marks were established on the Mount Goddard quadrangle by G. R. Davis.

California-Nevada.—The survey of the Bridgeport quadrangle, which lies partly in the Sierra National Forest, in Mono and Tuolumne counties, Cal., and Esmeralda County, Nev., was completed by G. R. Davis, Pearson Chapman, and C. M. Weston, the area mapped being 673 square miles, for publication on the scale of 1:125,000, with a contour interval of 100 feet. Of this area, 81 square miles lies in Nevada. For the control of this area Mr. Weston ran 38 miles of primary levels and established 10 permanent bench marks. Five permanent bench marks were also established by vertical angulation. The survey of the Hawthorne quadrangle, in Mono County, Cal., and Esmeralda and Nye counties, Nev., was completed by C. G. Anderson, and that of the Ivanpah quadrangle, in San Bernardino County, Cal., and Lincoln, Inyo, and Clark counties, Nev., was completed by J. E. Blackburn and S. G. Lunde, the total area mapped being 7,626 square miles, for publication on the scale of 1:250,000, with a contour interval of 100 feet. Of this area 1,691 square miles lies in Nevada. For the control of the Ivanpah quadrangle C. F. Urquhart occupied 8 triangulation stations, marked 7, and intersected 5, and L. F. Biggs ran

237 miles of primary levels, in connection with which 55 permanent bench marks were established. For the control of the Hawthorne quadrangle C. M. Weston ran 11 miles of primary levels and established 3 permanent bench marks.

Idaho.—The survey of the Meadows quadrangle, which lies partly in the Weiser National Forest, in Washington and Boise counties, Idaho, was completed by A. O. Burkland and E. A. Lincoln, and that of the Cataldo quadrangle, in the Cœur d'Alene National Forest, in Shoshone, Bonner, and Kootenai counties, was completed by W. O. Tufts, J. W. Muller, and O. G. Taylor, the total area mapped being 766 square miles, for publication on the scale of 1:125,000, with a contour interval of 100 feet. The survey of portions of the Kaniksu and Pend Oreille national forests, in Bonner County, was continued by Messrs. Tufts, Muller, and Taylor, the area mapped being 565 square miles, for publication on the scale of 1:250,000, with a contour interval of 200 feet. The survey of the Wayan quadrangle, which lies partly in the Caribou National Forest, in Bannock and Bear Lake counties, was begun by Albert Pike and W. O. Tufts, the area mapped being 33 square miles, for publication on the scale of 1:125,000, with a contour interval of 100 feet. (See also p. 79.)

Idaho-Wyoming.—The survey of the Montpelier quadrangle, which lies partly within the Bear River and Caribou national forests, in Bear Lake and Bannock counties, Idaho, and Uinta County, Wyo., was completed by A. E. Murlin, Albert Pike, and M. A. Knock, the total area mapped being 781 square miles, of which 91 square miles is in Wyoming, for publication on the scale of 1:125,000, with a contour interval of 50 feet. For the control of this area L. F. Biggs ran 186 miles of primary levels and set 30 permanent bench marks.

Nevada.—The revision of the culture of the Ely special quadrangle, in White Pine County, Nev., was completed by W. O. Tufts, the area revised being 8 square miles, for republication on the scale of 1:30,000, with a contour interval of 50 feet.

Oregon.—The state engineer of Oregon allotted $2,500 for the continuation of cooperative topographic surveys in that State, which was met by a like sum for the same purpose from the United States Geological Survey. The survey of the Willamette Valley was continued and resulted in the completion of the mapping of parts of the Halsey and Elmira quadrangles, in Lane, Benton, and Linn counties, the total area mapped being 171 square miles, for publication on the scale of 1:62,500, with a contour interval of 7 feet. This work was done by C. A. Clunet, Robert Muldrow, and W. B. Lewis. For the control of these areas L. F. Biggs ran 123 miles of primary levels and established 22 permanent bench marks. In addition to the cooperative work, the survey of the Crater Lake National Park, in Klamath County, was completed by Pearson Chapman, the area mapped being 135 square miles, for publication on the scale of 1:62,500, with a contour interval of 50 feet. For the control of this park Mr. Chapman occupied 2 triangulation stations and marked 1. A profile survey of Deschutes and John Day rivers, in Wheeler, Wasco, and Crook counties, was made by J. L. Lewis and E. L. Sellon, the length of traverse being 240 miles.

Oregon-Washington.—The survey of the Mount Hood special quadrangle, which lies partly in the Bull Run National Forest, in Multnomah, Clackamas, and Wasco counties, Oreg., and Clarke and Skamania counties, Wash., was continued by R. M. La Follette, E. L. Sellon, and E. R. Johnston, the area mapped being 299 square miles, for publication on the scale of 1:125,000, with a contour interval of 100 feet. The entire area mapped was in Oregon.

Utah-Wyoming.—The survey of the Randolph quadrangle, which lies partly in the Bear River National Forest, in Rich and Cache counties, Utah, and Uinta County, Wyo., was continued by Albert Pike, the area mapped being 405 square miles, for publication on the scale of 1:125,000, with a contour interval of 100 feet. Of this area 67 square miles lies in Wyoming. For the control of this quadrangle L. F. Biggs ran 88 miles of primary levels and established 23 permanent bench marks.

Utah.—The Frisco special quadrangle, in Beaver County, Utah, was enlarged by the mapping of 35 square miles by W. M. Beaman, for publication on the scale of 1:45,000, with a contour interval of 50 feet. A profile survey of Green River, in Uinta and Emery counties, was made by Stanley Hargen, the area traversed being 177 miles.

Washington.—Under the allotment of $10,000 each made by the Board of Geological Survey of Washington and the United States Geological Survey, topographic mapping was continued, and resulted in the completion of the survey of the Quincy, Red Rock, and Winchester quadrangles and part of the Beverly quadrangle, in Grant, Adams, and Douglas counties, for publication on the scale of 1:62,500, with a contour interval of 25 feet; also the completion of the Mount Vernon quadrangle, in Snohomish and Skagit counties, for publication on the scale of 1:125,000, with a contour interval of 50 feet. The total area mapped was 1,425 square miles, the work being done by J. R. Eakin, W. B. Kern, G. V. Brown, W. A. Gelbach, C. F. Eberly, H. L. McDonald, A. O. Burkland, and R. M. La Follette. For the control of these areas W. A. Gelbach and C. H. Semper ran 257 miles of primary levels and established 74 permanent bench marks, and C. A. Clunet ran 72 miles of primary traverse and set 3 permanent bench marks. In addition to the cooperative work, the survey of the Washington National Forest, in Skagit and Whatcom counties, was continued by J. E. Blackburn, the area mapped being 745 square miles, for publication on the scale of 1:250,000, with a contour interval of 200 feet.

IDAHO-WASHINGTON BOUNDARY LINE.

Work on the Idaho-Washington boundary line was continued under the appropriation of $25,000 made by Congress in 1908 for its survey, the work having been placed in charge of the United States Geological Survey by the Secretary of the Interior. The survey was completed by C. L. Nelson and S. G. Lunde, 42 miles of the line being surveyed and marked by 45 iron monuments 6 feet long, 4 inches in diameter, filled with concrete, and by 2 granite monuments 6 feet long and 10 inches square. In addition to these, 55 iron monuments 4 feet long and 3 inches in diameter, filled with concrete, were placed at the closing corners of the public-land surveys. In connection with this work, the topography of an area one-half mile in width on each side of the line was mapped by Bayard Knock and Mr. Nelson, this area comprising 116 square miles, for publication on the scale of 1:62,500, with a contour interval of 50 feet.

OFFICE WORK.

The drafting of the following sheets was completed: Bridgeport, Cal.-Nev.; Mount Goddard, Reeds, Yuba City, Sutter City, Lomo, Arcade, Antelope, Brighton, Mills, Browns Valley, Grimes, Meridian, McKittrick, and Smartsville special, Cal.; Montpelier, Cataldo, and Meadows, Idaho; Crater Lake, Harrisburg, and Rowland, Oreg.; Frisco special, Utah; Mount Vernon, Winchester, Red Rock, and Quincy, Wash.; Idaho-Washington boundary line; Hawthorne, Nev.

Progress in the drafting of additional sheets was made as follows: Eddys, Cal., 75 per cent; Mariposa, Gridley, Honcut, French Crossing, and Salinas, Cal., 66 per cent; Marysville Buttes, Cal., 50 per cent; Big Bar, Cal., 75 per cent; Bangor and Pennington, Cal., 25 per cent; Tracy (oil belt), Cal., 25 per cent; Smartsville, Cal., 40 per cent; Kaniksu and Pend Oreille national forests, Idaho, 35 per cent; Mount Hood special, Oreg., 66 per cent; Elmira and Smithfield, Oreg., 66 per cent; Diamond Hill School, Oreg., 15 per cent; Ivanpah, Cal.-Nev., 50 per cent; Randolph, Utah, 50 per cent; Beverly and Mount Baker, Wash., 50 per cent.

In the triangulation and computing section the following computations were made:

Primary level circuits in the Winkleman quadrangle (Ariz.) were adjusted.

Precise level circuits in the Antioch and Rio Vista quadrangles and primary level circuits in the Bangor, Biggs, Butte City, Grimes, Nelson, Nord, and Oroville (Cal.) and Bridgeport and Ivanpah (Cal.-Nev.) quadrangles were adjusted. Geodetic distances and positions in the Biggs, Butte City, Grimes, Hollister, Metz, Nelson, Nord, Oroville, Salinas, San Lucas, Soledad, and Yuba City (Cal.) and Ivanpah (Cal.-Nev.) quadrangles were computed.

Primary level circuits in the Pocatello and Soda Springs (Idaho) and Montpelier (Idaho-Wyo.) quadrangles were adjusted.

Primary level circuits in the Hawthorne and Ivanpah quadrangles (Nev.-Cal.) were adjusted.

Primary level circuits in the Elmira, Eugene, Halsey, Monroe, and Smithfield quadrangles (Oreg.) were adjusted and geodetic distances and positions were computed in the Albany, Brownsville, Corvallis, Elmira, Halsey, and Monroe quadrangles (Oreg.).

Geodetic distances and positions in the Randolph quadrangle (Utah-Wyo.) were computed.

Primary level circuits in the Bellingham, Beverly, Crater, Ephrata, Kittitas, Malaga, Mount Vernon, Quincy, Red Rock, and Stillaguamish quadrangles (Wash.) were adjusted and latitudes, departures, and geographic positions in the Mount Vernon quadrangle were computed.

Level lists were revised for Arizona, California, and Nevada.

Level lists covering the work done in the State of Washington were assembled, computations and readjustments being made where necessary, preparatory to transmission to the editor for publication as a bulletin.

COMPILATION OF SPECIAL NATIONAL FOREST MAPS.

The work of preparing the folios of the atlas of the national forests was continued under the direction of A. C. Roberts.

The maps were made on the scale of 1 mile to the inch and published with 6 townships to the page. All the work of the United States Geological Survey, the General Land Office, and the Hayden, Transcontinental, and Wheeler surveys, as well as work done by the Forest Service, was incorporated in these maps. The status of all lands inside the forests was furnished by the Forest Service. Where the timber classification was considered up to date, it was shown in color on the maps.

Folios were finished during the fiscal year 1909–10 for the following forests: Datil, Stanislaus, Sierra, Tahoe, Sevier, Santa Barbara, Fish Lake, Powell, Ozark, Inyo, Uinta, Cleveland, Tonto, Alamo, Gila, Prescott, Crook, Modoc, Oregon, Toiyabe, Idaho, Nez Perce, Colville, Ashley, Monterey, Nebo, Deerlodge, Payette, Weiser, Pend Oreille, Cascade, San Luis, Umpqua, Sequoia, Challis, and Kootenai.

The work on the Ocala, Beaverhead, Cabinet, and Deschutes folios was partly completed and they were turned over to the Forest Service by order of the Director.

The folios have been lithographed and delivered to the Forest Service with the exception of the Inyo, Sequoia, and Umpqua, which have been sent to the lithographer.

The Mono and Inyo folios were completed in January, but were partly recompiled from new data finished last season.

The Sierra folio is now undergoing changes from the new data and is practically finished. Seven sheets have been recompiled and sent to the lithographer. The Trinity folio is having the new Big Bar quadrangle added.

INSPECTION OF TOPOGRAPHIC SURVEYING AND MAPPING.

As in the past, the field time of the inspectors was divided between regular topographic work and inspection duty. J. H. Renshawe was engaged in the early part of the season in inspection work in the Central and Rocky Mountain divisions, and in the latter part of the season in regular topographic sketching on the Hennepin quadrangle (Ill.). After the completion of the addition to the Frisco special quadrangle (Utah) and its inking in the field, W. M. Beaman spent the balance of the season in inspection work in the Rocky Mountain and Pacific divisions. F. E. Matthes divided his time in the field between topographic work on the Pocahontas special quadrangle (Va.-W. Va.), the instruction of new field men in topographic methods applicable to West Virginia, and inspection in the Atlantic division.

During the office season careful attention was given by Messrs. Renshawe and Beaman to the final drawing of the topographic sheets, with an aim to insuring uniformity of treatment and eliminating personal mannerisms and errors of expression; also to the examination of the finished sheets preparatory to transmission for engraving or photolithographing; to the examination of woodland and land-classification sheets and correction material for the office record; and to the proper transmission of all field-map material within the office. Mr. Matthes's time was devoted to the inking of his field work, to the completion of the report on the Yosemite Valley, and to the revision of the book of instructions for the topographic branch.

INSTRUMENTS AND TOPOGRAPHIC RECORDS.

The minor repairs to instruments were made as heretofore in the Survey shop, much less repair work than usual being given to outside contractors. Two new traverse transits, 102 box compasses of a new style, 6 Beaman alidades, and 4 micrometer alidades were the principal additions to the stock. After considerable investigation, it was decided to adopt an alloy of aluminum bronze (Cu 90 per cent, Al 10 per cent) for bench-mark tablets and for the caps of bench-mark posts.

The addition to the topographic records consisted of 203 triangulation and traverse books, 1,961 level books, 154 vertical-angle or stadia books, and 152 plane-table sheets, all of which were numbered and catalogued.

MAP OF THE UNITED STATES.

The initial point (meridian of Greenwich) in the numbering of the sheets of the 1 : 1,000,000 scale map adopted by this office was changed to the meridian of 180° from Greenwich by the International Geographic Society at a meeting held in London in 1909. The sheets are now numbered from 1 to 60 and proceed eastward around the world.

Of the work begun last year on the 1 : 1,000,000 scale map of the United States, under the direction of A. F. Hassan, the coastal-plain area of North Carolina (sheets I and J 17 and 18), the State of Illinois (portions of sheets J and K 15 and 16), the special Wisconsin area (sheet K 16, latitude 42° to 44°, longitude 87° 30′ to 90°, scale 1 : 250,000), and portions of New Hampshire, Massachusetts, Connecticut, and Rhode Island (sheet K 19) were completed, and the compilation and inking of sheet K 18 was completed, as well as the lettering of the Vermont, New Hampshire, Massachusetts, and Connecticut portions and 18 per cent of the Pennsylvania portion. The submarine contours were compiled for the Florida sheets.

New work included the following:

Sheet L 19, Vermont portion, compiled, inked, and lettered.

Sheet L 18, New York and Vermont portion, compiled, inked, and lettered.

Sheet J 18, Pennsylvania portion, compiled and inked.

Sheet L 16, Michigan portion, compiled, inked, and lettered; Wisconsin portion, compiled and inked; Canadian portion, compiled and inked.

Sheet L 17, Michigan portion, compiled, inked, and lettered.

Sheet M 16 (Canada), compiled and inked to the forty-ninth parallel.

Sheet M 15, Minnesota portion, compiled and inked; Canadian portion to the forty-ninth parallel, compiled and inked.

Sheet L 15, Wisconsin portion, compiled and inked; Minnesota portion, compiled and inked as far west as the ninety-fifth meridian.

Sheet K 15, Wisconsin portion, compiled and inked.

Sheet K 17, New York, Pennsylvania, and West Virginia portions, compiled and inked; Ohio portion, compiled and 60 per cent inked; Michigan portion, compiled, inked, and lettered.

Sheet J 17, Ohio portion, compiled and 30 per cent inked; Pennsylvania portion, compiled and inked.

Sheet K 16, Michigan portion, compiled, inked, and lettered; Indiana portion, compiled and inked; Ohio portion, compiled; Wisconsin portion, transferred from a reduction of the area on the special scale, inked, and lettered.

Sheet J 16, Indiana portion, compiled and inked; Ohio portion, compiled and 50 per cent inked.

Sheet H 14, a special area extending about 1½° north and 2° west of Austin, Tex., compiled, inked, and lettered.

WATER-RESOURCES BRANCH.

INVESTIGATION OF POWER SITES.

The character and usefulness of the work performed by the water-resources branch have been discussed in previous reports. The most prominent feature of the last year's work is the investigation of power sites on the public lands. Nearly 1,500,000 acres have been designated for temporary withdrawal from entry. This work was performed so that the power sites now remaining in federal ownership might be retained pending suitable consideration of the matter by Congress. The withdrawal act, approved June 25, 1910, provides that—

> The President may, at any time in his discretion, temporarily withdraw from settlement, location, sale, or entry any of the public lands of the United States, including the District of Alaska, and reserve the same for water-power sites, irrigation, classification of lands, or other public purposes to be specified in the orders of withdrawals, and such withdrawals or reservations shall remain in force until revoked by him or by an act of Congress.

The lands withdrawn for power sites are located in Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming. A statement of the acreage represented in each State is given on page 48. Although the withdrawals were made through the agency of the Survey's land-classification board, nearly all the designations of land suitable for the purpose were made by the water-resources branch. These designations were based largely on information collected by the Survey during the last thirty years. Some of it was specific, actual power sites being located and defined. The greater proportion of the withdrawals were, however, based on general information collected incidentally during the progress of previous investigations. Such information usually consisted of a knowledge of the slope and flow of a river, derived from specific surveys made by the topographic branch, or from river profiles and gagings previously made by the water-resources branch. Data for Columbia River were furnished by the Corps of Engineers, War Department. Specific information was also obtained from published and unpublished notes and maps made in the course of geologic investigations. One of the most interesting incidental features of the water-power work was the demonstration of the utility of the investigations made by the Survey for other purposes during past years, affording evidence of the wide scope and comprehensiveness of the Survey's previous work.

Since the adoption of the power-site withdrawal policy it has been the practice of the Commissioner of the General Land Office to refer all right-of-way applications to the Geological Survey for an opinion as to whether the granting of them would "interfere with the use of any valuable power site desired to be withdrawn by the Geological Survey pending contemplated legislation." These applications have brought to the Survey's attention many sites that would otherwise have been unrecognized until a later date, when the property would have been examined in the regular course of work.

Field examination is required to confirm or to disprove the assumptions made with reference to the power-site lands withdrawn on general information, as above described. There are certain tracts that on critical investigation will prove not to be adapted for power purposes. Indeed, such examinations as have already been made have resulted in the restoration to entry of many tracts. Some rivers are known to have a certain slope in a given distance, indicating that power development may be possible along that reach, and all the public land bordering that reach is withdrawn from entry. Subsequent field examination, however, may show that the greater part of that slope occurs within only a short distance along the river and that the remainder, or the greater part of it, is valueless for the development of power. Again, it may be found that although a certain withdrawn reach of river has a decided fall and therefore is apparently well adapted for power development, the water supply is not sufficient to afford a good power. These and other conditions may affect the value of lands withdrawn for power sites on general information, and therefore emphasize the necessity for field examinations and surveys. It is the purpose to push this work so far as may be possible with the appropriations available during the coming year and to restore to entry all lands not found useful for power-site development.

The previous work of the Survey in the measurement of stream flow in the West has been and will be of the highest importance in determining many of the necessary facts. Much remains to be done in the gaging of stream flow in rivers on which power sites have been withdrawn. The logical work for the immediate future relative to these sites must therefore be, first, the critical examination of these lands with reference to their specific suitability for power development, and second, the observation of stream flow to determine how much power may be made available. There is no present basis on which to estimate the amount of power that may be developed at many of these sites. Gaging stations will be established on all unmeasured rivers along which lands have been withdrawn.

It has been found necessary to determine what shall be considered a power site, suitable for withdrawal, and how much land shall be withdrawn to protect it. To do this the necessities in the case must first be defined and then interpreted according to what may be considered a reasonable federal policy. The subject is broad and provocative of many diverse opinions. It is therefore necessary to adopt standards which seem to cover in the widest degree the important points involved.

A reform is usually the result of abuses, present and past. The water-power land reform is no exception to the rule. Among the most widely discussed abuses in this country at present are those which many persons apprehend as a result of the centralization of water powers in common ownership covering wide fields and dominating a great market. It would be strange indeed if this great industry should not, in common with all others of importance, gravitate toward the modern industrial idea of centralization. All the industrial economies resulting from centralization apply to this as to other industries. It can hardly be expected that the familiar abuses will not creep in unless they are restrained. There is, however, a physical difference which sets the water-power industry apart from many of the others. To be of the highest utility water power must meet the market's demands. It must instantaneously adapt itself to market fluctuations. These fluctuations occur, not from season to season, but from hour to hour. A water power that may be sufficient to meet all demands at noon may be quite insufficient to meet the demands of a few hours later. At another place the period of maximum load may be the reverse, or at a quite different time. The capacity of a single water power can not, except under unusual conditions, be fully adapted to a general market, but the capacity of many united water powers can easily be so distributed as to cover varying necessities. In this way the shortage at one place at a certain time can be compensated by the surplus at another place at that time. The situation is analogous to that of the car-dispatching system of a railroad. It would not be good management to have each division of a railroad equipped with rolling stock sufficient to respond to the maximum demand of that division. Cars are shifted from one division to another according to local demand. So it is with a power system. If each unit of a power system must respond to the maximum demands in the locality of that unit, then it is plain that there will be a large waste of resources represented by idle machinery during the hours of minimum use in each locality. Needless to say, the cost of power to the ultimate consumer would have to be increased in like proportion.

There is then a physical necessity for consolidation in water power. To prevent abuses, it is not necessary to prevent consolidation. Abuses may be constructively restrained. How shall this be done in the case of powers on the public lands?

The only feasible way at present is to withdraw the power sites from general entry, to put them in a special class, under either national or state control, and to stipulate that when they are developed they shall be operated subject to reasonable regulations. Such a plan provides for those sites which are to be developed in the near future, as well as those for which there may be no demand in a century. The developments in the future will be quite as important as those of the present, yet while the sites are awaiting development they should be relieved from all property entanglements and be subject to regulation when the market demands them. None should be taken up for speculation under another guise. None should pass from government ownership except for immediate and purposeful use. It is plain that the only way by which the Federal Government can, under present statutes, properly conserve the water powers of the public domain is by withdrawing them from entry pending the enactment of appropriate legislation.

Many lands on which power may be developed are nevertheless more useful for irrigation. The present policy of the department is based on the "higher use." Any tract of land that has a higher use for irrigation or any other industrial purpose than for power should be devoted to that use. It is equally true that in many places, though irrigation may be the higher use, the power use can also be preserved.

CAREY ACT SEGREGATIONS.

The water-resources branch has been obliged to consider during the year a large number of proposed Carey Act segregations for the purpose of determining whether the contemplated water supply is sufficient to properly irrigate the acreage applied for. This is a most important matter. Although the Government does not by virtue of the Carey Act guarantee the success of any project, the fact that it is supposed to look well into the conditions controlling any of these projects and to grant the lands necessary only after it has satisfied itself under the law and under the rules of the department that the proposition is a worthy one places an implied obligation on the department to reduce the area allowed for segregation to that which can safely be served by the available water supply. The general impression has been spread widely by those interested in the promotion of such projects that they must be safe because the Government has so guaranteed, and as a result many settlers have invested in these projects with that erroneous idea. Many applications for Carey Act grants have been referred to the Geological Survey, and examinations have been made by the aid of stream-flow records that have been collected during previous years. As a result certain projects have been shown to be deficient in water supply. Thus protection is accorded to the prospective settler on these tracts.

AUTHORITY FOR INVESTIGATIONS.

The water-resources investigations of the year were made under the authority of the following clause in the sundry civil act:

> For gauging the streams and determining the water supply of the United States, and for the investigation of underground currents and artesian wells, and the preparation of reports upon the best methods of utilizing the water resources, one hundred thousand dollars.

This amount, which has been appropriated annually for several years, is not sufficient to perform the required work in all parts of the United States. It is therefore necessary to select each year the areas in which the work is to be done. This selection is based, first, on the relative importance of the investigations in the various parts of the country with especial reference to the needs for information concerning the amount and character of both surface and underground waters; second, on the amount of work previously performed in the several parts of the country, those areas that have had the least attention in the past receiving preference.

ALLOTMENTS.

The allotments from the appropriation for the last fiscal year are as follows:

Allotments from appropriation for stream gaging, etc.

Administrative salaries of the Survey	$5,271
Clerical assistance and supervision of work	9,980
Purchase of supplies and equipment	500
Computations, reports, and technical studies	10,080
Stream gagings in—	
New England and New York	5,750
New Jersey, Pennsylvania, and Maryland	500
Virginia, South Carolina, North Carolina, Georgia, Alabama, Mississippi, and Tennessee	6,000
West Virginia, Kentucky, Ohio, Indiana, and Illinois	5,500
Southern Wyoming, Colorado, and New Mexico	7,500
Northern Wyoming, Montana, and North Dakota	4,500
Idaho, Utah, and Nevada	5,500
Washington and Oregon	7,500
California	4,500
Field inspection	4,000
Ground-water investigations	13,810
Investigations of quality of water	7,550
Débris investigations	2,000
Contingent	59
	100,000

COOPERATION.

STATES.

Cooperation with several States has been maintained, as described in previous reports, the States and the amounts allotted by them being given in the following table:

Amounts allotted by States for cooperative hydrographic work.

California	$9,000	New York	$5,000
Idaho	2,000	Oregon	2,500
Illinois	2,000	Utah	2,000
Maine	3,300	Vermont	1,000
Massachusetts	1,050	Washington	5,000
Minnesota	17,500		
New Mexico	2,500		52,850

The work performed under these agreements is outlined in the following paragraphs:

California: The determination of the flow of rivers, together with the survey of reservoir, dam, and canal sites for the purposes of development of irrigation, water power, and municipal supply; also the study of underground waters.

Idaho: The determination of the amount of water flowing in rivers.

Illinois: The determination of stream flow, especially low waters and flood heights, for use as a basis for the drainage of swamp and overflow lands.

Maine: The determination of stream flow and the survey of river profiles and reservoir sites.

Minnesota: The determination of stream flow and the survey of river profiles and reservoir sites.

New Mexico: The determination of stream flow for irrigation and water-power purposes.

New York: There are two cooperative agreements in force in this State—one with the state engineer, in which $1,500 is expended by each party for the determination of stream flow at points designated by the state engineer, and the second with the state water supply commission, amounting to $3,500 by each party, the money being devoted to the examination of stream flow for storage and water-power purposes.

Oregon: The determination of stream flow for irrigation and water-power purposes.

Utah: The determination of stream flow for irrigation purposes.

Vermont: The determination of stream flow and the survey of river profiles.

Washington: The determination of stream flow for irrigation and water-power purposes and the survey of river profiles and reservoir sites.

RECLAMATION SERVICE.

Cooperation has also been maintained with the United States Reclamation Service. The rivers supplying water to the reclamation projects under construction by that bureau must necessarily be investigated to determine the amounts of water that they will yield for irrigation. This work, being specifically applied to these projects, becomes a proper charge thereon, and the Reclamation Service has deemed it of advantage to utilize the Survey engineers for this work, paying to the Survey, through transfer of funds in the Treasury Department, the actual cost of the investigations. During the last year 152 stations have been maintained under this cooperative agreement.

OFFICE OF INDIAN AFFAIRS.

Cooperation has also been effected with the Office of Indian Affairs in connection with ground-water investigations. At the request of the Commissioner of Indian Affairs a study of ground-water supplies was undertaken in the Moki and Navajo reservations of Arizona, New Mexico, and southern Utah, $3,000 being set aside for this purpose by the Indian Office. A report, with recommendations, based on this study and intended for the guidance of representatives of the Indian Office who are responsible for water development in this region, has been transmitted to the Commissioner.

Stream-flow investigations on Indian reservations have also been placed in charge of the Geological Survey by the Commissioner of Indian Affairs. The work during the last year has been performed on the following reservations:

Indian reservations on which investigations of stream flow have been made.

	Number of stations.		Number of stations.
Montana:		Wyoming: Shoshone	15
Blackfeet	7	Idaho: Fort Hall	3
Fort Belknap	1	Washington: Yakima	12
Fort Peck	4	Oregon:	
Crow	1	Warm Springs	1
		Klamath	2

The cost of this work has been paid by transfer in the United States Treasury from the Indian Office appropriation.

FOREST SERVICE.

At the request of the Forester a geologist was detailed to the Paulina district, in eastern Oregon, to advise the local forest officials as to the possibility of developing underground waters in that area for domestic and stock purposes and, further, to assist in determining the depths of wells for which contracts are to be let in the future. The amount set aside by the Forest Service and expended in this work was approximately $400.

PUBLICATIONS.

The work of the water-resources branch is represented in the following publications issued during the year: Professional Paper 65;

Water-Supply Papers 232 to 236, 238, 239, 241 to 245, 247 to 250, and 252. Titles and brief summaries of these publications are given on pages 15, 21–23. Seven other papers were in press at the close of the year, 3 have been submitted for publication, and 34 are in different stages of preparation.

CHARACTER OF INVESTIGATIONS.

The investigation of water resources in the United States involves work of three kinds. One is the determination of river flow, which is the basis for the development of storage, water power, irrigation, flood prevention, and land drainage. Another is the determination of the occurrence, location, and amount of underground waters. The third is the study of the quality of water, both surface water and that occurring underground, and its fitness for the various industrial and domestic uses. The problems involved are of engineering, geologic, and chemical character and wide fields are covered in each of these branches of science.

MEASUREMENTS OF RIVER FLOW.

DISTRICTS AND GAGING STATIONS.

The methods followed in gaging streams are discussed in detail in the printed annual progress reports of the work. (See Water-Supply Papers 241–252.) For administrative purposes the country is divided into districts, each in charge of a district engineer, as follows:

New England district: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut. T. W. Norcross, district engineer, 6 Beacon street, Boston, Mass. District engineer in subdistrict of Maine, C. C. Babb, state capitol, Augusta, Me.

New York district: New York, New Jersey, and northern Pennsylvania. C. C. Covert, district engineer, Federal Building, Albany, N. Y.

Middle Atlantic district: Southern Pennsylvania, Maryland, Delaware, Virginia, and the eastern part of West Virginia. R. H. Bolster, district engineer, Washington, D. C.

Southeastern district: North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, and Tennessee. M. R. Hall, district engineer, Federal Building, Atlanta, Ga.

Ohio Valley district: Ohio, Indiana, Illinois, Michigan, middle Missouri, and Arkansas. A. H. Horton, district engineer, Federal Building, Newport, Ky.

Upper Mississippi district: Minnesota, Wisconsin, and Iowa. Robert Follansbee, district engineer, Old Capitol Building, St. Paul, Minn.

Denver district: Southern Wyoming, Colorado, and New Mexico. W. B. Freeman, district engineer, Commonwealth Building, Denver, Colo.

Upper Missouri district: Northern Wyoming, Montana, North Dakota, and South Dakota. W. A. Lamb, district engineer, Helena, Mont.

Great Basin district: Utah, Idaho, and Nevada. E. C. La Rue, district engineer, Brooks Arcade, Salt Lake City, Utah.

Columbia River district: Oregon and Washington. J. C. Stevens, district engineer, Tilford Building, Portland, Oreg.

California district: California and Arizona. W. B. Clapp, district engineer, Federal Building, Sacramento, Cal.

The results of the work performed in these districts are compiled and computed for publication by the computing section in the Washington office, under the charge of R. H. Bolster, assistant engineer. The distribution of the gaging stations by States is as follows:

Stream-gaging stations, by States.

State.	Number of river stations.	Number of measurements.	New stations established in year ending June 30.	Stations discontinued during year ending June 30.	Number of stations maintained in cooperation with state or federal bureaus.
Alabama	9	16	0	0	8
Arizona	0	0	0	0	0
Arkansas	6	0	6	6	6
California	72	674	1	2	42
Colorado	43	951	6	12	19
Connecticut	2	0	0	0	2
Delaware	0	0	0	0	0
District of Columbia	1	0	0	0	0
Florida	0	0	0	0	0
Georgia	17	84	2	1	9
Idaho	44	344	19	6	44
Illinois	23	165	6	0	23
Indiana	1	2	0	0	1
Iowa	1	0	0	0	0
Kansas	0	1	0	0	0
Kentucky	0	0	0	0	0
Louisiana	0	1	0	0	0
Maine	30	99	10	4	30
Maryland	2	6	0	0	0
Massachusetts	16	82	9	0	16
Michigan	8	0	0	0	1
Minnesota	51	251	22	9	51
Mississippi	9	9	0	0	8
Missouri	1	2	1	0	1
Montana	94	443	6	3	72
Nebraska	6	28	0	0	6
Nevada	11	33	1	4	6
New Jersey	8	3	0	0	2
New Hampshire	8	24	2	0	0
New Mexico	32	194	11	3	23
New York	39	176	3	5	39
North Carolina	15	38	0	7	1
North Dakota	19	12	0	7	12
Ohio	4	8	1	0	3
Oklahoma	0	0	0	0	0
Oregon	94	128	10	7	71
Pennsylvania	0	0	0	0	0
Rhode Island	5	40	5	1	5
South Carolina	4	12	0	0	1
South Dakota	0	5	0	0	0
Tennessee	7	13	0	0	5
Texas	8	1	0	0	8
Utah	49	293	10	0	48
Vermont	9	48	1	0	9
Virginia	16	35	0	3	1
Washington	71	515	14	8	58
West Virginia	21	48	0	0	2
Wisconsin	6	0	0	0	1
Wyoming	21	40	0	17	21
	878	4,824	146	105	655

NEW FEATURES OF THE WORK.

Special attention has been given during the year to raising the standard of the progress report on stream measurements. The methods of computation have been revised so as to insure much greater accuracy in the results than heretofore. This work has been under the direct supervision of R. H. Bolster, who has had many years' experience in work of this class. He has been assisted by a corps of trained men, who, under his direction, make up a computing section that is to be a permanent feature of the water-resources branch.

In order to insure the greatest accuracy in the data, they are carefully reviewed by the field men before being transmitted to this office. These data, with full notes on all special points, form the basis for the work in the computing section, where the final estimates are made. These estimates are then submitted to the district engineers for inspection, so that all published results have a double check.

All the descriptive matter in the progress reports has been carefully revised and all nonessential material eliminated.

The physical conditions governing the work of stream gaging are such that the data for the different stations can not be of the same standard of accuracy. In order that the engineer using the report may know what reliance to place on the results given, a column has been added to the monthly estimate table for each station, showing the probable error.

The increased demand for water for municipal supply, irrigation, and other uses has forced the utilization of many small sources of supply which heretofore have not been considered important. This has created a demand for data on the small streams, and every effort has been made to meet this demand.

During the year the instruments for determining stream flow have been greatly improved, with the result both of facilitating the work and of increasing the accuracy of the results. A new automatic gage, which gives a printed record of the time and stage of the river for every fifteen minutes, has been developed by Gurley & Co., of Troy, N. Y., from preliminary plans and suggestions given by the engineers of the water-resources branch. It is believed that this instrument will be a large factor in future stream-gaging work, as the diurnal fluctuations in most streams, due to natural and artificial conditions, require a continuous record of stage in order to obtain accurate results.

To facilitate the use of government reports relating to water supply, climate, etc., the United States has, by agreement between the Survey and the Weather Bureau, been divided into twelve areas and the progress report of stream gaging has been divided into twelve parts, each part covering one of these areas. The areas and the numbers of the corresponding reports giving the results for 1907-8 and for 1909 are as follows:

Areas represented by progress reports.

Area.	Water-Supply Paper No.	
	1907-8.	1909.[a]
North Atlantic coast	241	261
South Atlantic coast and eastern Gulf of Mexico	242	262
Ohio River basin	243	263
St. Lawrence River basin	244	264
Upper Mississippi River and Hudson Bay basins	245	265
Missouri River basin	246	266
Lower Mississippi River basin	247	267
Western Gulf of Mexico	248	268
Colorado River basin	249	269
Great Basin	250	270
California	251	271
North Pacific coast	252	272

[a] The reports for 1909 have not yet been published.

RIVER-PROFILE SURVEYS.

Preliminary river-profile surveys in advance of topographic mapping have been made during the year in Maine, Minnesota, and Oregon. The work in Minnesota was done at the expense of the State, but under the direction of the Geological Survey. Certain reservoir-site surveys formed a part of these examinations. The localities of the work are given in the following table:

River-profile surveys, fiscal year 1910.

Minnesota:	Linear miles surveyed.
Root River	108.3
Rum River	140.6
Red Lake River	142.8
Cannon River	65.3
Cloquet River	62.0
St. Louis River	162.0
Ottertail River	58.6
Crow Wing River	89.7
Lake Millelacs.	

Maine:
- Umbagog Lake.
- Lower Richardson Lake.
- Upper Richardson Lake.
- Mooselucmaguntic Lake.
- Mooselucmaguntic Lake Outlet.
- Richardson Lake Outlet.
- Abraham Pond.
- Scammons Pond.

Maine—Continued.
- Molasses Pond.
- Webbs Pond Outlet.
- Alligator Pond.
- Rocky Pond.
- Spectacle Pond.
- Great Pond.
- Green Lake Outlet.
- Branch Lake Outlet.
- Union River, Goodwins Bridge to Great Pond.
- Union River, Ellsworth to Great Pond.

Washington:
- Klickitat River
- Lewis River.
- Toutle River.
- White Salmon River.
- Little White Salmon River.

GROUND-WATER INVESTIGATIONS.

At the beginning of the fiscal year $13,810 was set aside as a special allotment for the investigation of underground waters. Of this amount, $4,000 was transferred to the division of geology for expenditure under the supervision of the chief geologist in the investigation of the ground waters of the Atlantic and Gulf coastal plains, and an additional amount of $1,080 was allotted for clerical assistance, leaving $8,730 for the study of ground waters. This sum was devoted to investigations in California, New Mexico, Utah, Arizona, and north-central Texas.

A two years' field investigation of the springs of California, begun in the fiscal year 1909, was continued during 1910, and at its close the work was advanced to such a point that an additional month's field work, to be followed by a month's office work, will result in the completion of a full report. This work has been done by G. A. Waring. Near the close of the fiscal year 1910 Mr. Waring was invited by the Republic of Brazil to initiate studies of water resources in that country of the same general character as those carried out by the United States Geological Survey. Mr. Waring has accepted this invitation and will depart for his new field in September, 1910.

The work in the State of Iowa, begun several years ago, has been brought to a close during the present year, and a voluminous report embodying the results has been prepared under the general supervision of W. H. Norton, of Mount Vernon, Iowa, the part dealing with the chemistry of the waters being prepared by W. S. Hendrixson, of Iowa College. In order to complete the work within the year, O. E. Meinzer, of the Survey staff, was assigned to Professor Norton to complete certain county descriptions. This field work was finished in the autumn of 1909, and Mr. Meinzer's report was prepared and embodied with the rest of the Iowa material. This entire report, which is considered to be of much importance, is now in course of preparation for publication and should be issued during the next fiscal year.

In addition to the Iowa work Mr. Meinzer was assigned to a study of ground-water conditions in the Estancia Valley, New Mexico, and also undertook some studies in Utah to supplement those commenced by him during the fiscal year 1909. The Estancia Valley report has been written and transmitted for publication, and at the close of the fiscal year the Utah report is nearly completed.

A small allotment has been set aside for the use of C. H. Gordon, of the University of Tennessee, Knoxville, Tenn., to enable him to complete a report on the geology and underground waters of north-central Texas, his report on the northeastern part of this State having been submitted during 1909. The later report is about complete at the close of the fiscal year and will probably be submitted for publication during the summer.

Studies of ground-water conditions in the Moki and Navajo reservations, undertaken by H. E. Gregory at the request of the Office of Indian Affairs during the previous year, were continued in the fiscal year 1910, and a report embodying Professor Gregory's conclusions was forwarded to the Indian Office for its guidance in the development of underground water on the reservations. The Indian Office has set aside an additional sum of $1,500 for the extension of these investigations during the fiscal year 1911 and Professor Gregory has been assigned to this field to continue the work and to prepare the desired report.

At the request of the Forest Service a brief examination of conditions of the water supply in the Paulina district in eastern Oregon was undertaken by the Geological Survey during May and June, 1910. This study, likewise made by Professor Gregory, was completed and its results were transmitted directly to the Forest Service officials in the Portland district.

W. C. Mendenhall, in administrative charge of ground-water investigations, remained in the Washington office until late in the summer reviewing reports and preparing them for publication. In the fall he made a reconnaissance through three districts in eastern and central Washington and in Owens Valley, California. Later, accompanied by H. R. Johnson, who resigned from the service early in the fiscal year to enter private work, he reviewed Mr. Johnson's field work in the Antelope Valley and the southern parts of the Mohave Desert in California. Subsequently Mr. Johnson's report was completed and at the close of the fiscal year submitted for publication. Mr. Mendenhall also made some studies in the San Jacinto Valley in California during the early winter, but these were interrupted before their completion and a report on this field has not been prepared. A large part of Mr. Mendenhall's time toward the close of the year was expended in the review of manuscripts and in general routine and committee work for the Survey.

The greatest demand for ground-water studies comes from the arid States, where surface supplies are not available or are meager. The stimulus given by the enlarged-homestead act to the settlement of arid and semiarid districts has increased this demand, for in many places settlement is possible or dry farming is successful only if sufficient ground-water supplies can be procured for domestic and stock purposes. It is planned to investigate the arid and semiarid valleys of the West in advance of settlement, so far as the limited funds, the cooperative agreements, and other considerations permit.

INVESTIGATIONS OF THE QUALITY OF WATER.

In 1905 a study was commenced with the object of ascertaining the mineral content of surface waters of the United States in relation to geologic, climatic, and other conditions and especially in relation to chemical denudation. With this end in view and with the cooperation of the Reclamation Service, of state authorities in California, Illinois, Kansas, and Washington, and of many municipalities daily samples of water have been collected from the principal streams of the country at about 240 stations and the composite samples from these have been analyzed, a collection having been thus obtained of about 6,000 mineral analyses comparable with each other and indicative of the amount and character of the mineral matter carried by the streams of the United States.

During the fiscal year 1910 much of this work has been brought to a close and several reports on it have been completed. Water-supply papers on the quality of surface waters of California (No. 237), by Walton Van Winkle and F. M. Eaton; of Illinois (No. 239), by W. D. Collins; and of the United States east of the one hundredth meridian (No. 236), by R. B. Dole, have been published. A report has been prepared on the quality of the waters of Kansas, by H. N. Parker. The study of the quality of streams of the arid States conducted by the Reclamation Service has been correlated with similar work by the Geological Survey, and the manuscript containing the analyses of the waters has been prepared by Herman Stabler for publication as a water-supply paper. Part 2 of the "Quality of surface waters of the United States east of the one hundredth meridian" has been commenced by R. B. Dole and is to be completed during the next fiscal year.

In November, 1910, under a cooperative agreement with the state board of health of Washington, a study of the surface waters of that State, particularly in the Columbia River basin, was begun. Twenty stations for the daily collection of samples have been established and the chemical analyses are being made by Walton Van Winkle in a laboratory placed at the disposal of the Survey by the University of Washington. It is planned to complete the field studies and to prepare the report on them during the fiscal year 1911.

The completion of the Washington work will conclude this study of the quality of surface waters, by which the Survey will have obtained data covering the average quality and the general fluctuations in mineral content of most of the larger bodies of surface water in the United States.

In March, 1910, H. N. Parker resigned to enter private work. During the first six months of the fiscal year 1910 R. B. Dole was furloughed, being on duty for the Department of State in Ecuador. Since his return the greater part of his time has been consumed in supervision of the work on the quality of water, in review of manuscripts, and in the preparation of several papers on the chemical composition of underground waters, to accompany special reports. For the first four months of the year Walton Van Winkle was in charge of the chemical laboratory at the Alaska-Yukon-Pacific Exposition and later organized the study of waters in the State of Washington.

During the fiscal year 1910 the sum of $5,500 has been expended in investigations dealing with the quality of water. At the close of this year these investigations have been combined with those of underground waters, for under present conditions the studies of quality are confined almost exclusively to ground waters.

DÉBRIS INVESTIGATION.

The investigation of the natural laws governing the transportation of suspended material by rivers, described in previous reports, was discontinued on January 1, 1909. The results, covering a period of three and one-half years' experimentation, are now being compiled. They show certain fundamental relations between the amount of material carried by streams under varying conditions of slope, depth, width, etc. Although the work was carried on under laboratory conditions—that is, in small troughs and with artificially applied water and débris—certain relations, exponential and others, are indicated which, with suitable modifications, may be applied to practical conditions. The treatment of rivers in which suspended matter is a large factor has been based on rules that are largely empirical. It is believed that the application of the laws discovered in these investigations will have a wide and valuable application.

PERSONNEL.

The work during the year has been in charge of M. O. Leighton, chief hydrographer, and J. C. Hoyt, assistant chief hydrographer.

TECHNOLOGIC BRANCH.

ORGANIZATION AND SCOPE.

The organization of the technologic branch includes three divisions corresponding to the three separate appropriations—mine accidents, fuels, and structural materials. The work under these divisions was continued throughout the fiscal year as in the year previous.

The general supervision of the work has also remained as during the previous year, under Joseph A. Holmes, expert in charge, afterward chief technologist; Herbert M. Wilson, chief engineer, afterward assistant chief technologist; J. C. Roberts, assistant chief engineer, in charge of the Pittsburg experiment station, assisted by A. W. Belden.

In the mine-accidents division the technical force consisted of 5 mining engineers, 2 assistant engineers, 4 junior engineers, 1 explosives engineer, 1 junior testing engineer, 1 geologist, 1 assistant geologist, 1 electrical engineer, 1 junior electrical engineer, 1 consulting electrical engineer, 1 chemist, 1 explosives chemist, 2 assistant chemists, 1 junior chemist, and consulting mining engineers employed temporarily as needed.

In the fuel division the technical force consisted of 3 engineers in charge, 1 metallurgical engineer, 2 engineers, 13 assistant engineers, 15 junior engineers, 2 consulting engineers, 1 chief chemist, 5 chemists, 8 assistant chemists, 17 junior chemists, 1 physicist, 1 peat expert, 1 laboratory assistant, and 3 laboratory helpers.

In the structural-materials division the technical force consisted of 1 engineer in charge, 1 metallographer, 1 engineer, 3 assistant engineers, 8 junior engineers, 1 engineer of tests, 1 chemist, 1 assistant chemist, 10 junior chemists, 1 ceramic chemist, 1 assistant ceramic chemist, 2 junior ceramic chemists, 1 assistant geologist a portion of the time, in addition to 1 laboratory helper and 2 apprentices.

LABORATORIES AND TESTING FACILITIES.

No material enlargement of the facilities for testing and research was made during the fiscal year other than that incident to steady development in the mine-accidents and structural-materials divisions. As the appropriation for fuel testing was $100,000, as against $250,000 the year before, a corresponding curtailment in the extent and variety of the operations and in the personnel of the fuel division for the year was necessary.

The facilities for structural-materials investigations at the Pittsburg experiment station were increased by the construction and equipment of a kiln house, containing several types of kilns for the burning of brick, tile, and other clay products.

A laboratory was established at Atlantic City, N. J., for the investigation of the influence of sea water on concrete and of sea water and salt air on paint used as a preservative of structural materials; this was continued in operation throughout the year, as was also the laboratory at Northampton, Pa., for testing cement for use in the construction of the Panama Canal.

The small explosives testing gallery No. 2 at Pittsburg was equipped with necessary appliances for use in testing electric motors, electrically operated mining machines, and other electric equipment in the presence of explosive mixtures of gas.

During the year four substations were established as headquarters for investigations of the mining engineers—one in the Federal Building, Knoxville, Tenn.; one in a building of the University of Illinois, provided through the cooperation of the Illinois State Geological

Survey at Urbana; one in the Philippine Exposition Building on the grounds of the State University, Seattle, Wash., in cooperation with the state mine inspector of Washington; and one at McAlester, Okla., in cooperation with the state mine inspector for the Five Civilized Tribes and the Oklahoma Coal Operators Association. Each of these buildings was equipped with gas-tight rooms and the necessary apparatus for training miners in rescue work.

PUBLICATIONS.

During the fiscal year 12 bulletins (Nos. 382, 383, 387, 388, 392, 393, 402, 403, 412, 416, 418, and 423) were issued. Titles and brief summaries of these bulletins are given on pages 17–21. Seven of them relate to fuel testing, 3 to structural materials, and 2 to mine accidents. One is in press, 18 have been submitted for publication, and a number of others are in different stages of preparation.

MINE-ACCIDENTS DIVISION.

The organization and researches of the mine-accidents division were continued during the fiscal year as reported for the last year.

The inspection of coal mines in the Territory of New Mexico was continued under Jo E. Sheridan, mine inspector, and the work was kept current.

G. S. Rice, assisted by R. Y. Williams, J. J. Rutledge, H. M. Wolflin, and L. M. Jones, and for a portion of the year by A. C. Ramsay, David White, J. W. Groves, and C. A. Fisher, examined and sampled a number of coal mines in West Virginia, Illinois, Missouri, Pennsylvania, Ohio, Utah, Washington, and other States. These samples were collected and analyzed for one or another branch of the government service, in connection with the purchase of coal for the use of the Government, and this work has been done in cooperation with the fuel division. In Washington, Illinois, and Missouri the state geologists cooperated in the collection of the coal samples. In all, 355 mines were inspected and 1,476 coal samples, 158 samples of mine dust, and 134 samples of mine air were taken for analysis.

These engineers have also visited the scenes of explosions and mine fires and investigated the condition of the mines, sampled and tested the coal dust and gas, and made other studies with a view to determining the cause of the disasters. They have also carried on experiments to determine the influence of sprayed water or steam and of calcium chloride, etc., as means of preventing dust explosions.

J. W. Paul, assisted at various times by F. F. Morris, F. W. Horton, L. M. Jones, A. C. Ramsay, assistant mining engineers, and J. R. Cavanaugh, coal miner, has continued investigations and tests of safety lamps and of the efficiency of various types of rescue apparatus. With the cooperation of the mining engineers, Mr. Paul has supervised the training of practical miners in the use of rescue apparatus, in order to secure their assistance in investigations in the different coal fields. In connection with investigations of the mines, the mining engineers and assistants and the chief technologist aided state officials at 21 mine disasters, at the following places:

Mine explosions:
- Roslyn, Wash., October 3, 1909.
- Hartshorne, Okla., October 21, 1909.
- Johnstown, Pa., November 1, 1909.
- Herrin, Ill., December 23, 1909.
- Primero, Colo., January 31, 1910.
- Drakesboro, Ky., Lowder or Wickliffe mine, February 1, 1910.
- Ernest, Pa., February 5, 1910.
- Stearns, Ky., February 8, 1910.
- Craig, Okla., March 8, 1910.
- Bolen-Darnal, Okla., March 8, 1910.
- Wilberton, Okla., March 31, 1910.
- Ensley, Ala., April 21, 1910.
- Amsterdam, Ohio, April 22, 1910.
- Palos, Ala., May 5, 1910.

Mine fires:
- Duquoin, Ill., September 20, 1909.
- Cherry, Ill., November 13, 1909.
- Copper Hill, Tenn., November 29, 1909.
- Artemus, Ky., December 28, 1909.
- Cumberland, Ky., January 2, 1910.
- Artemus, Ky., Sturgis mine, January 6, 1910.
- South Bartonville, Ill., February 2, 1910.

Tests of the several types of rescue apparatus were made to determine their efficiency and safety under conditions of service use and for maximum periods of time. Tests have also been made and are still in progress on the various types of safety lamps and electric safety lamps in general use.

Clarence Hall, explosives engineer, with S. P. Howell, assistant engineer, and A. B. Coates and A. J. Hazlewood, junior engineers, made physical tests of explosives, with a view to determining their permissibility in coal-mining operations. In all 28 explosives passed the tests provided during the year and were announced in two different circulars issued in October, 1909, and May, 1910. The tests made included the following: Trauzl lead blocks, 114; small lead blocks, 86; rate of detonation of burning, 253; flame tests, 158; gallery No. 1, 1,272; ballistic pendulum, 401; pressure gages 1 and 2, 204; miscellaneous, 198.

On each Saturday throughout the year demonstrations were given at the Pittsburg testing station to organizations of state mine inspectors, mining associations, groups of coal operators, and their superintendents, foremen, and mine workers. These have included tests to show the safety or danger of the explosives used when detonated in the presence of explosive mixtures of mine gas, coal dust, and air in proportions similar to those occurring in the mines. Public demonstrations of the safety of mine lamps and of the use and method of operating mine rescue apparatus were also conducted throughout the year.

Chemical analyses of each of the explosives and of the gas resulting from the firing of the explosives and from the explosion of the materials used in conducting the investigations were continued throughout the year under W. O. Snelling, chemist, assisted by C. G. Storm, A. L. Hyde, W. C. Cope, assistant chemists, and C. A. Lambert, junior chemist. In this work 2,500 chemical analyses of explosives used in mining and 750 physical tests were made.

H. H. Clark, electric engineer, assisted by William Buhl, jr., continued investigations and tests relative to the use of electricity in mining and its relation to mine explosions. This work included a series of competitive tests of blown-out fuses in the presence of dangerous mixtures of mine gas and air, the investigation of insulation for electric wiring, and tests of incandescent lamps in similar mixtures and of coal-cutting machines.

FUEL DIVISION.

The organization of the fuel division continued throughout the year practically as during the preceding year, except that as a result of the reduction in appropriation a considerable curtailment was necessary in the large-scale producer-gas, briquetting, and steaming tests, and there was a corresponding reduction in the personnel engaged on these tests. The energies of the division were taxed to keep up the routine analyses and tests of coal purchased by the Government, including the special tests required by the Quartermaster's Department to ascertain the fuel equivalent of one cord of oak wood.

A number of tests of the briquetting properties of lignite without binder were made on the large German briquetting press, and a series of investigative tests were made in the long combustion chamber, with a view to solving certain problems relative to processes of combustion. A certain amount of necessary investigative chemical work on fuels was continued throughout the year.

The inspection of fuels used by the Government was continued under G. S. Pope, assisted by P. M. Riefkin, J. W. Peters, N. H. Snyder, A. A. Straub, W. J. Harris, jr., E. W. Miller, and H. H. McKee. This work included the preparation of specifications for use in the purchase of coal by purchasing officers in the city of Washington and elsewhere in the United States, also by the general supply committee and the Panama Railroad Company and Isthmian Canal Commission. Inspectors were permanently stationed at New York City and Norfolk, Va., and trips were made by Messrs. Pope and Riefkin to Boston, Omaha, St. Louis, Kansas City, Chicago, and other cities in order to give advice and assistance in connection with local coal problems. Mr. Riefkin was stationed for this purpose for several months at Superior, Wis., on behalf of the Office of Indian Affairs.

Among the results of the fuel investigations during the year was the fact that the purchase of over half of the coal used by the Government was based on some form of specification prepared by the technologic branch. During the year 7,300 samples of coal were received from government buildings and were analyzed, and on the basis of these analyses the payments for the coal were made. Of the samples collected, 2,800 were taken from coal delivered in the District of Columbia. As indicating the growth of this method of purchasing coal, it may be stated that 611,336 tons were so purchased in 1908–9, estimated to cost $1,858,750, and that 829,289 tons were purchased in the present fiscal year (1909–10), at an estimated cost of $2,286,800.

S. S. Voorhees, assisted by J. D. Davis, H. M. Cooper, J. A. Scherrer, William Buttner, W. Alexander, Wood Freeman, H. G. Elledge, and E. G. Borden, was engaged throughout the year in making chemical analyses and tests in Washington of the coals purchased by the Government in Washington and for public buildings throughout the United States.

During the absence of F. M. Stanton on sick leave, A. C. Fieldner, assisted by C. J. Monahan, D. I. Brown, H. Isenberg, W. E. Surbled, and C. K. Glycart, was in charge of chemical analyses of fuels sampled in the mines of the United States. During the year the following analyses and determinations were made: Analyses of gases, 5,000; analyses of mine air, 288; miscellaneous analyses, 556; number of determinations, 14,928.

The field and laboratory study of the chemical and microscopic structure of coal was continued by David White, assisted by Reinhard Thiessen; and field investigations into the character and distribution of peats and certain native coals was continued by C. A. Davis, chiefly in Massachusetts.

These special chemical investigations have added to the knowledge of the character and value of the coal underlying several million acres of public land, and the results were used in the classification of these lands. The samples of coal from the public lands were all collected by members of the geologic branch under M. R. Campbell.

A. C. Fieldner, assisted by G. A. Burrell, was engaged throughout the year in making chemical analyses and tests of natural gas and producer gas.

H. C. Porter, assisted by F. K. Ovitz, continued special chemical investigations concerning the distillation of typical coals at different temperatures. Mr. Porter carried on through the larger part of the year a series of investigations in cooperation with the Bureau of Yards and Docks, Navy Department, concerning the relative merits of storing steaming coal under salt water, in fresh water, and in air both sheltered and in the open. Investigations relative to the nature and possible means of preventing spontaneous combustion of coals were continued, and in cooperation with the Panama Railroad Company a study was made of the deterioration of coal stored in air in a large pile in the temperature of the Isthmus of Panama. This work included 430 tests and analyses, involving 1,500 determinations.

J. C. W. Frazer, assisted by E. J. Hoffman, continued his chemical research into the hydrocarbons in coal with a view to determining its ultimate chemical composition. Mr. Frazer also carried on a series of investigations and tests relative to the explosibility of coal dust of different degrees of fineness and to the gases evolved from coal, using therefor 205 samples of dust.

I. C. Allen, assisted by A. W. Jacobs, continued his chemical and physical examination into the character and fuel value of the different crude petroleums. This inquiry concerned chiefly the petroleums of California but included also miscellaneous petroleums and petroleum products, with a view to acquiring information desired by the Navy, War, and other departments. In the course of this work 1,500 tests were made.

J. K. Clement, assisted for a portion of the year by L. K. Adams, continued cooperation with Henry Kreisinger and J. C. W. Frazer in investigations of special combustion problems, and assisted W. T. Ray, A. V. Bleininger, R. L. Humphrey, and others in certain investigations requiring his special knowledge of the physics of high temperatures.

Fuel-efficiency investigations in connection with the heating and power plants of the Government were continued with special equipment by Henry Kreisinger and W. T. Ray. Mr. Ray left the service in January, 1910. Steaming tests, including smoke investigations, were made, chiefly on behalf of the Quartermaster's Department, by S. B. Flagg on the horizontal return tubular boiler and certain house-heating boilers. In addition, Mr. Flagg made a number of steaming tests at the heating plants of several bureaus in Washington, including the filtration plant, Government Printing Office, General Land Office, and others. He also, with the assistance of S. S. Voorhees and G. S. Pope, furnished advice to the chief clerk of the Treasury Department concerning problems arising at public buildings in different portions of the United States, especially with relation to the kind of fuel and most efficient manner of preventing or removing boiler-tube scale. In all, this work comprised 240 combustion tests, involving 30,600 observations.

R. M. Strong was engaged during a portion of the year in completing, with the advice and assistance of R. H. Fernald, a report on the tests of small internal-combustion engines. Mr. Strong left the service in May, 1910.

C. D. Smith, assisted by F. E. Woodman, conducted a number of producer-gas tests of coals and lignite, both raw and briquetted, and of a few low-grade coals, including samples of two graphitic anthracites from Rhode Island. In connection with producer-gas investigations 15 tests were made, involving 12,000 observations.

C. L. Wright completed certain large-scale lignite briquetting tests on carload lots from Texas, California, and North Dakota, and continued investigative tests on the small hand press in briquetting lignite and coal at various pressures and temperatures and with and without various proportions of binder.

A. W. Belden was engaged throughout the year in the study of the commercial coking processes and in completing his report on coking and washing tests and formulating a projected series of tests on the use of coke in foundry practice.

Lauson Stone continued throughout the year in charge of all computing for the fuel division, assisted at times by the assistant and junior engineers concerned.

A summary of the work for the fiscal year is as follows: Coal, lignite, peat, and oil, samples 2,317, determinations 16,093; gas mixtures (gallery gas), mine air, natural gas, producer and flue gas, samples 1,456, determinations 4,909; miscellaneous, samples 10, determinations 538.

STRUCTURAL-MATERIALS DIVISION.

The organization of the investigations of structural materials continued during the fiscal year as in the previous year. A change in the phraseology of the legislation provided for "the investigation of structural materials both belonging to and for the use of the United States, such as stone, clays, cement, etc." As construed by the Comptroller of the Treasury, the work authorized by the appropriation is limited to the investigation of such materials as are actual property of the United States and are to be used by the United States. The tests of samples representative of materials submitted by contractors for acceptance by the United States should therefore not be paid for from this appropriation, and in consequence, though the structural-materials division continued to test materials of this nature when submitted through the bureaus of the Government, the purchasing officers of those bureaus have been required to reimburse the structural-materials appropriation for the expense involved. The more important laboratory for the investigation of materials of this nature is that at Northampton, Pa., where cement purchased by the Isthmian Canal Commission is tested to ascertain its acceptability. Cement submitted for use in navy-yard and dry-dock construction has been tested at the Pittsburg laboratory, and miscellaneous materials of like kind at the Washington and Pittsburg laboratories.

The structural-materials investigations conducted under the appropriation were carried on chiefly at the Pittsburg laboratory and at the Atlantic City special laboratory. R. L. Humphrey continued in charge of the investigations of cement, concrete, and reinforced concrete, assisted during a part of the year by L. H. Losse and during the remainder of the year by Harry Kaplan, with the aid of E. B. Tolsted, J. G. Bragg, jr., and E. R. Gates. This force was chiefly engaged on investigations of reinforced-concrete beams and columns and a study of the building materials, including chiefly the aggregate for concrete, sent in by the field force, as well as on special investigations for the Isthmian Canal Commission and the Navy, War, and Treasury departments. During the year 13,000 briquet samples were made and 13,500 tests completed on sand, gravel, cement, clay, concrete, reinforced-concrete beams, etc.

The chemical research associated with the investigations of structural materials was conducted by P. H. Bates, assisted by H. H. Phillips and G. E. Webster. The most important problems occupying the attention of this force during the year were those connected with the effect of alkaline soils and waters on concrete and clay products, the effect of sea water on similar materials, and the waterproofing properties of asphalts and coal tars. During the year 1,700 mineral samples were tested and 6,500 determinations were made; and 350 tests and 1,500 analyses were made for government departments.

The investigations of clays and clay products for use in government buildings were conducted at Pittsburg by A. V. Bleininger, assisted by H. E. Ashley, G. H. Brown, and R. K. Hursh, and included chiefly studies of the durability of fire brick when exposed to high temperatures and placed under compressive strain at such temperatures and of the drying properties of clay and the best temperatures for burning it to produce building materials. In cooperation with the States of Arkansas, Texas, and Oklahoma, a study was made of the most efficient means of preparing clay products from indigenous clays so as to make them most suitable for use in public building construction.

During the year the following tests and investigations on clays were conducted:

Crushing strength of clay	1,000
Fire-brick tests	650
Colloid matter of clay	300
Drying investigations	80
Burnt-clay investigations	1,800
Miscellaneous investigations	1,500
	5,330

Under the direction of A. V. Bleininger, assisted by W. E. Emley, investigations of lime, caustic and hydrated, including studies of the methods of burning it, were conducted to determine the types of lime locally available for public building construction and the methods of mixing and proportioning them with sand to make mortar of greatest compressive and tensile strength.

The following work pertaining to lime was done during the year:

Lime plants inspected	14
Density determinations on limes and limestones	200
Lime briquets made for determining compression strength	1,100
Lime briquets made for determining tensile strength	400
Miscellaneous tests	750

The most important investigation conducted by the structural-materials division during the year related to the structural materials most available as to quantity, quality, and location for use in some 400 public buildings authorized by Congress and planned or under construction by the Office of the Supervising Architect. This work was carried on in the States west and south of New England by E. F. Burchard, assisted by J. E. Todd, H. L. Gardner, and J. A. Udden. In New England and portions of New York, Pennsylvania, and a few of the Southern States the field work was continued by N. H. Darton, assisted by T. Nelson Dale. J. A. Holmes assisted in this work at intervals in different parts of the United States. Every quarry furnishing building stone or stone for screenings for use in concrete and numerous gravel and sand pits and brick and tile works were examined; notes were made as to their capacity, output, transportation facilities, and market prices; and samples were collected and forwarded to the Pittsburg laboratory for investigation. Reports of the field investigations were submitted to the Supervising Architect. The materials sampled have been retained for future examination at such time as the Treasury Department may call for additional information regarding them, and in a number of cases the necessary investigations have, on request, been made and the results reported.

The investigations at the Atlantic City laboratory relative to the behavior of concrete exposed to salt water were continued by R. J. Wig under the supervision of R. L. Humphrey. During the year shipments of iron cement from Germany and of cement ground with tufa from California were procured, and these materials were investigated along with typical Portland cement. In addition to these investigations on behalf of the Navy and War departments, a similar series of related investigations concerning the effect of salt water on reinforced-concrete piles for use by the Panama Railroad and the Isthmian Canal Commission were commenced.

The following work was done during the year:

Cement cylinders made and tested	1,000
Cement briquets made and tested	2,100
Other tests	350

A study of the effect of paint, chiefly mineral pigment, as a preservative of structural materials was commenced by S. S. Voorhees, at the request of the Supervising Architect. During a portion of the time Mr. Voorhees was assisted by H. A. Gardner. This investigation included analyses of the pigments and of the oil. The paint was applied to various steel and iron plates, also to such plates when coated with protective coverings of zinc, tin, etc. These plates were exposed to atmospheric action at the Atlantic City laboratory and a record was kept of their behavior.

The testing of cement for the Isthmian Canal Commission under the supervision of R. L. Humphrey was continued at the Northampton laboratory for a portion of the time under W. A. Campbell; later by A. D. Gates. That for the Navy Department was commenced and is in progress at Pittsburg under E. B. Tolsted and T. N. Holmes. The following work was done during the year:

Bins sampled	250
Briquets made	95,500
Samples taken	11,000
Briquets tested	87,500
Soundness pats made	44,000
Time of set tests	11,000
Specific-gravity tests	10,000
Fineness tests	10,500

At the Washington laboratory investigations of structural materials purchased for use by the several branches of the Government were continued under the direction of S. S. Voorhees and G. O. Spitler, assisted by A. C. Nothstine, J. G. Fairchild, F. H. Tucker, and others. For the Treasury, War, and other departments of the Government 4,500 samples were received and tested.

PUBLICATION BRANCH.

BOOK-PUBLICATION DIVISION.

SECTION OF TEXTS.

The publications of the year consisted of 1 annual report, 4 professional papers, 47 bulletins, 9 advance chapters from two other bulletins, 18 water-supply papers, 1 annual report on mineral resources for 1908 (also published in 48 advance chapters), and 6 geologic folios. These publications were the Thirtieth Annual Report; Professional Papers 64 to 67; Bulletins 360, 377, 380, 2 separates from 381, 382 to 424, 428, and 7 separates from 430; Water-Supply Papers 227, 232 to 236, 238, 239, 241 to 245, 247 to 250, and 252; Mineral Resources for 1908 (volume and 48 separates); Geologic Atlas, folios 167 to 171 and 173 (published in folio and octavo forms). Titles and summaries of these publications are given on pages 15–24. In addition to the publications of the regular classes the following were issued: A list of maps illustrating physiographic types; 2 circulars on permissible explosives; a pamphlet entitled "Cooperation between the United States and various States in topographic, hydrographic, and geologic work;" and Press Bulletins 389 to 427 (also 6 special issues). The total number of pages in these publications was 12,855; for the year 1908–9 the number of pages was 10,180.

During the year 29,257 pages of manuscript were prepared for printing and proof sheets for 12,517 final printed pages were read and corrected, this work involving the handling of 4,893 galley proofs and 28,005 page proofs. The corresponding figures for last year were 19,775 pages of manuscript, 11,840 final printed pages, 4,139 galley proofs, and 23,748 page proofs.

Indexes were prepared for 56 publications, covering 10,782 pages, the corresponding figures for last year being 47 publications and 9,730 pages.

The copy and proofs of all account and record books and blanks, circulars, office cards, etc., are examined in this section. This work consumes a large part of the time of one person, but it is not practicable to report the amount statistically.

The personnel of this section consists of the editor, the assistant editor, three editorial clerks, and one stenographer and typewriter.

The division of mineral resources and the water-resources branch have continued to render special assistance in copy preparing and proof reading.

During the year members of the section of texts have at various times cooperated with the section of distribution.

SECTION OF ILLUSTRATIONS.

During the year 3,382 illustrations were prepared and most of them were transmitted to accompany 42 bulletins, 17 water-supply papers, 3 professional papers, 1 monograph, 1 annual report, and 1 report on mineral resources. These illustrations included 250 maps, 744 diagrams, 1,674 paleontologic drawings, 2 landscape drawings, 478 photographs retouched, and 234 miscellaneous.

Proofs to the number of 1,720 were received and compared critically, and the printed editions of all illustrations furnished by contract during the year were examined.

During the year 272 electrotypes were furnished to outside applicants; the number furnished last year was 109.

At the close of the year material for the illustration of 37 reports is in hand.

The personnel of the section consists of ten draftsmen (including the draftsman in charge) and one copyist clerk.

SECTION OF GEOLOGIC MAPS.

During the year 1909–10 six folios (Nos. 167 to 171 and 173; see pp. 23–24) were published, in both folio and octavo (field) editions. The maps for the Warren (Pa.), Johnstown (Pa.), Sewickley (Pa.), and Birmingham (Ala.) folios were also printed and these folios will soon be issued. In addition the following folios were received for publication during the year and are in various stages of engraving and editing: Bismarck, N. Dak.; Burgettstown-Carnegie, Pa.; Burnet-Llano, Tex.; Claysville, Pa.; Ellijay, Ga.-N. C.-Tenn.; Foxburg-Clarion, Pa.; Hollidaysburg, Pa.; Pawpaw-Hancock, W. Va.-Md.-Pa.; Raritan, N. J.; Van Horn, Tex.

The geologic map of North America was completely revised and prepared for publication, and its engraving was begun.

SECTION OF TOPOGRAPHIC MAPS.

On June 30, 1910, there were in the custody of the editor of topographic maps 40 new topographic atlas sheets and special maps which had not yet been put into the hands of the engravers, and 57 maps were in process of publication. The corresponding figures on June 30, 1909, were 76 and 59. During the year 56 new maps were received for publication, 1 map was withdrawn, and 93 maps were published.

The manuscripts edited comprise 88 new topographic atlas sheets and special maps; corrections for 371 sheets hitherto published; 2 maps published under contract; and 168 map illustrations which are or will be included in 27 volumes of Geological Survey reports. The proof read comprises 90 new maps and corrections to 103 maps.

Compilations were made for a revision of the large United States base map (49 by 76 inches) and the copy was prepared for engraving. The revision and correction has been completed and an office edition in nine sheets printed. The three-sheet sale edition was in press at the close of the year. For a new edition of the pamphlet "Topographic maps and folios and geologic folios" the lists of topographic maps were completed to date and each item of the old lists was verified or corrected.

Five men were engaged in the work of this section during the entire year.

SECTION OF DISTRIBUTION.

The section of distribution received during the year 128 new books, 6 folios, 93 new maps, 7 revised maps, 2 photolithographs, and 369 reprints of maps, a total of 605; the totals of all editions were 571,175 books, 28,541 geologic folios, 184 topographic folios, and 1,238,307 maps; grand total, 1,838,207. During the year 508,917 books, 36,139 folios, and 593,622 maps (including 478,737 sold), a total of 1,138,678, were distributed.

The total amount received and turned into the Treasury as a result of sales of publications was $21,202.55 (of which $20,606.35 was from sales of topographic and geologic maps), an increase of $1,303.27 over the amount received in the fiscal year 1908–9.

During the year 95,877 letters were received, answered, and filed, an increase of 22,562 over the number in the preceding year.

Fifteen persons are engaged in the work of this section.

DIVISION OF ENGRAVING AND PRINTING.

MAPS, FOLIOS, AND ILLUSTRATIONS.

At the beginning of the year 135 atlas sheets and special maps were on hand for publication and the accessions during the year were 56 maps. The status of these 191 maps on June 30, 1910, was as follows:

Published during the year	93
Withdrawn from publication	1
In press	21
In process of engraving	36
Not taken up	40

Besides the engraving of new maps, corrections were made on the plates of 371 maps hitherto published. Editions of 469 maps, including new sheets and reprints, were printed and delivered to the map room.

Six geologic folios were published, and 28,541 copies were delivered. One geologic folio was in press at the close of the year and six others had been partly completed.

Under contracts with the Government Printing Office, illustrations were printed for the following Survey publications: Bulletins 381, 390, 398, 406, 407, 408, 410, 415, 416, 427, 432; Professional Papers 66 and 68; Water-Supply Papers 220, 221, 231, 234, 237; Mineral Resources, 1908; Thirtieth Annual Report of the Director; and Stadia Tables. For the Government Printing Office, also, the following items were printed and delivered: Maps to illustrate the American Ephemeris and Nautical Almanac, Annual Report Chief Signal Officer U. S. Army, Annual Report Commissioner of Indian Affairs, Annual Report Department of the Interior, Annual Report Isthmian Canal Commission, Annual Report Superintendent Mount Rainier National Park, Engineers' Field Manual U. S. Army, Twenty-first Annual Report on the Statistics of Railways, and 29 House documents and Senate reports; illustrations for Forest Service Form 979 and General Land Office Form 4–675a; sketching sheets for Forest Atlas; sectional township blanks; maps of 9 national monuments and reservations; and homestead maps of States and Territories. The following work was done for other government departments and bureaus: For the Forest Service, maps of 46 national forests, diagrams for 27 national-forest proclamations, Forest Atlas legend page, two maps of North America showing natural-forest regions, map of national forests and related projects and data, statistical diagrams and illustration for supervisor's report; for the General Land Office, 1,605 township plats; for the Department of the Interior, maps of three national parks; for the Reclamation Service, War Department, Office of Indian Affairs, Isthmian Canal Commission, Smithsonian Institution, Civil Service Commission, Biological Survey, Weather Bureau, Interstate Commerce Commission, Bureau of Soils, Army Service Schools, and Bureau of American Ethnology, a large amount of miscellaneous work. This work for other branches of the Government amounted to about $45,000, for which the division was reimbursed by transfer of credit on the books of the United States Treasury.

Of contract and miscellaneous printing of all kinds the total number of copies delivered was more than a million and a third and required nearly three and one-half million printings. The total number of copies printed, including topographic maps and geologic folios, was 2,604,666, requiring over nine and one-third million impressions. On requisition of the Government Printing Office 796 transfer impressions were made and shipped to contracting printers.

INSTRUMENT SHOP.

The work of the instrument shop consisted in overhauling and repairing surveying, drafting, and engraving instruments and making copperplates and electrotypes. More than 3,000 repairs were made to instruments and 375 new copperplates and 22 electrotypes were finished.

PHOTOGRAPHIC LABORATORY.

The output of the photographic laboratory included 10,260 negatives, of which 2,884 were wet, 648 paper, and 6,728 dry; and 25,337 prints, of which 8,994 were maps and 16,343 matte prints.

ADMINISTRATIVE BRANCH.

EXECUTIVE DIVISION.

Correspondence, records, appointments, supplies, and shipments.—The work of this section during the year continued along the lines previously followed, the only change being in the method of granting leave without pay. In accordance with instructions from the Secretary dated May 13, 1910, all applications for such leave are referred to the department for action instead of being passed on by the chief clerk of the Survey. The volume of work performed in this section has increased in almost every item.

Mails, files, and records.—During the year 132,182 pieces of incoming mail were handled in this section, a gain of nearly 9 per cent over the preceding fiscal year. The gain in 1909 over 1908 was more than 13 per cent. Of this mail 2,348 pieces were registered and 25,670, an increase of 1.6 per cent over the preceding year, contained remittances for publications of the Survey. The amount of money received in this mail was $23,858.86, an increase of 5.8 per cent over 1909.

The recording, referring, and filing of correspondence required the services of four clerks through the year. The number of letters mailed through the section was 85,307, an increase of 6.7 per cent over the previous year. Of this number 12,120 were registered.

Personnel.—The roll of those holding Secretary's appointments numbered at the close of the fiscal year 958 persons, compared with 955 at the close of 1909. Although the total number is thus practically the same, the number of changes in the personnel was 1,083 during the year. These changes included original appointments, separations, promotions, extensions, and changes of status of every description. Of these 296 were new appointments, or accessions, 293 were separations, 377 were promotions, 5 were reductions, and the remainder extensions of limited appointments, changes in titles or in the basis of payment, the designation of disbursing agents, and such other minor changes as neither increased nor decreased the total number of persons.

During the year 16,358 days of annual leave and 2,938 days of sick leave were granted, being about 55 per cent of the amount of annual leave and 11 per cent of the amount of sick leave which it is permissible to grant under the law; 15,613 days of leave without pay were also granted. These figures show considerable increases, the leave without pay being 127 per cent higher than last year. There were also 111 transfers to state pay rolls, in coöperative work.

Property accountability.—During the year the system of property accountability by custodians for various branches and divisions was continued, with a custodian of office property. An inventory of all nonexpendable property in Washington was submitted to the department at the close of the calendar year 1909.

Express and freight.—During the year 4,472 pieces of freight and express were handled by the shipping clerk, of which 1,043 were outgoing and 3,429 incoming; 567 freight and express accounts were examined and checked. This is an increase of 35 per cent in the number of pieces handled, but a decrease in the number of accounts checked.

Purchase and distribution of supplies.—During the year three persons were engaged in the purchase and distribution of supplies, which includes the procuring of bids, the issuing of orders, and the preparation of vouchers covering all purchases in the open market. The number of requisitions handled was 2,015; this was a decrease of 29 per cent from 1909, but in that year the number was abnormally large because of the two fires that necessitated the replacing of destroyed property.

Stationery.—In the stationery room the services of three men are required in handling the mails, packing and shipping supplies to field parties, keeping an account of the charges for stationery supplies, and making requisitions on the department for printing and supplies. During the year 6,740 requisitions for blanks, blank books, and miscellaneous supplies were filled from stock on hand, and 302 requisitions were drawn on the department for stationery supplies, 505 for printing, and 317 for furniture and miscellaneous supplies. These figures are all smaller than the corresponding ones for 1909.

Administrative bookkeeper.—During the year the administrative bookkeeper, in addition to his regular duties, was put in charge of the bookkeeping of the division of disbursements and accounts, economy of work and expense being effected by this arrangement. He continued to handle all Survey transactions of an administrative character, passed on all requisitions for supplies to be procured from the Department of the Interior, and verified and prepared for settlement the accounts covering charges thus arising against Survey appropriations.

The following table gives the classified net expenditures by the Survey for the fiscal year 1910, the repayments shown in the table on page 123 having been deducted:

Classification of expenditures by the United States Geological Survey for account of the fiscal year ending June 30, 1910.

Appropriation.	Total.	Salaries and wages.	Traveling expenses.	Rent, electric light, and motive power.	Office furniture and fixtures.	Stationery supplies.	Library.	Transportation of property.	Instruments.	Telegrams and telephone service.
Salaries, statutory	$64,339.71	$64,339.71								
Skilled laborers, etc	19,999.51	19,999.51								
Gaging streams, etc	98,896.49	78,775.51	$8,347.22	$2,407.16	$1,114.60	$1,057.21		$334.55	$1,681.11	$287.44
Chemical and physical researches	19,939.18	18,809.20	25.50	342.18	5.00	34.72		12.88		
Preparation of illustrations	17,158.82	15,784.48			13.95	826.77		.50		13.38
Mineral resources of the United States	74,252.45	64,633.77	3,897.11	555.80	542.30	1,188.02	$4.20	170.34	17.55	332.60
Books for the library	1,143.48						1,134.68	8.80		
Topographic surveys	347,811.29	284,909.22	24,994.69		1,151.77	5,318.52	2.70	7,719.03	4,559.76	401.40
Geologic surveys	221,285.57	179,942.88	11,814.19	154.99	1,884.85	2,138.11		1,682.89	1,097.27	305.91
Mineral resources of Alaska	89,640,12	55,205.78	12,989.72	25.00	815.41	271.78		5,696.63	642.66	75.90
Replacing articles destroyed by fire	338.43									
Geologic maps of the United States	87,476.20	72,979.20	767.87	2,137.88	34.85	289.98		73.10		46.89
Surveying forest reserves	74,452.80	50,733.34	4,445.66		150.00	501.76		1,524.37	199.08	42.15
Testing fuel	99,661.84	85,618.43	1,898.99	657.46	192.19	323.38	142.27	1,310.61	17.85	228.07
Testing structural materials	91,494.80	65,249.20	3,854.64	485.22	68.67	208.49	248.80	1,253.43		186.67
Inspecting mines in Territories	3,064.80	1,999.99	524.81							
Investigating mine accidents	149,510.43	119,830.86	5,877.44	3.08	510.96	426.39	129.60	974.25		248.24
	1,459,960.92	1,128,810.08	79,437.84	6,768.27	6,484.55	12,084.98	1,662.25	20,761.33	8,215.28	2,118.60

Classification of expenditures by the United States Geological Survey for account of the fiscal year ending June 30, 1910—Continued.

Appropriation.	Camp outfit.	Subsistence.	Forage.	Photographic material.	Engraving and printing material.	Chemical and physical laboratory material.	Drawing material.	Control material.	Erection of testing plants.	Operation of testing plants.
Salaries, statutory										
Skilled laborers, etc										
Gaging streams, etc	$450.93	$2,651.75	$363.30	$844.44		$487.91	$93.36			
Chemical and physical researches		8.75		4.20		694.16	2.64			
Preparation of illustrations				749.50			265.34			
Mineral resources of the United States	14.25	2,176.18	10.70	244.89		512.31	2.43			
Books for the library										
Topographic surveys	12,709.90	32,024.74	16,403.45	3,088.34		27.85	1,266.70	$2,783.22		
Geologic surveys	2,029.15	11,218.92	2,735.14	3,548.77		2,187.22	543.78	2.00		
Mineral resources of Alaska	5,703.61	6,320.82	1,055.34	577.86		87.00	172.66			
Replacing articles destroyed by fire						338.43				
Geologic maps of the United States		306.37		529.90	$10,311.21					
Surveying forest reserves	2,780.59	9,771.57	3,916.82	301.60			38.10	47.76		
Testing fuel		1,183.61		179.94		3,282.53	45.00		$2,708.09	$1,873.47
Testing structural materials		3,488.27		268.68		964.99	12.97		12,861.24	2,893.53
Inspecting mines in Territories		540.00								
Investigating mine accidents		4,396.07	.25	464.05		5,507.88	4.20		6,231.26	4,906.40
Total	23,688.43	74,087.05	24,485.00	10,762.17	10,311.21	14,090.28	2,447.18	2,832.98	21,800.59	9,673.40

DIVISION OF DISBURSEMENTS AND ACCOUNTS.

A condensed statement covering the financial transactions of the fiscal year is given below.

Amounts appropriated for and expended by the United States Geological Survey for the fiscal year ending June 30, 1910.

Title of appropriation.	Appropriation.	Repayments.	Available.	Disbursements.	Balance.
Salaries, office of the Director	$34,860.00	$5.00	$34,865.00	$34,444.81	$420.19
Salaries, scientific assistants	29,900.00	81.75	29,981.75	29,981.65	.10
Skilled laborers, etc	20,000.00	....	20,000.00	19,999.51	.49
Gaging streams, etc	100,000.00	28,268.64	128,268.64	127,165.13	1,103.51
Chemical and physical researches	20,000.00	....	20,000.00	19,939.18	60.82
Preparation of illustrations	18,280.00	16.67	18,296.67	17,170.49	1,126.18
Mineral resources of the United States	75,000.00	23.64	75,023.64	74,276.09	747.55
Books for the library	2,000.00	....	2,000.00	1,143.48	856.52
Topographic surveys	350,000.00	44,287.46	394,287.46	391,598.75	2,688.71
Geologic surveys	225,000.00	34,246.57	259,246.57	255,532.14	3,714.43
Mineral resources of Alaska	90,000.00	65.16	90,065.16	89,705.28	359.88
Replacing articles destroyed by fire	425.00	....	425.00	338.43	86.57
Geologic maps of United States	100,000.00	54,013.11	154,013.11	141,489.31	12,523.80
Surveying forest reserves	75,000.00	49.20	75,049.20	74,502.00	547.20
Testing fuel	100,015.38	4,264.55	104,279.93	103,926.39	353.54
Testing structural materials	100,000.00	23,793.02	123,793.02	115,287.82	8,505.20
Inspecting mines in Territories	7,350.00	....	7,350.00	3,064.80	4,285.20
Investigating mine accidents	150,000.00	8,127.15	158,127.15	157,637.58	489.57
	1,497,830.38	197,241.92	1,695,072.30	1,657,202.84	37,869.46

LIBRARY.

The library received during the year 11,563 book publications and 851 maps. The accessions record shows a total of 69,778 volumes; of this number 3,972 volumes have been transferred to the Library of Congress or otherwise disposed of, leaving 65,806 now on hand. The estimated number of maps is 35,800 and of pamphlets 85,000. During the year 8,010 volumes and 980 maps were catalogued.

Constant care is exercised to procure, as nearly as possible, all new original works of geologic interest and such as are needed of the more recent publications in the fields of the related sciences. Some additions have also been made to the earlier literature of geology and paleontology, thus increasing the value of the library for reference purposes.

The number of visits to the library during the year was 8,578, and 12,340 books and 547 maps were loaned for use outside of the library.

In order to bring up to the authorized quota of 500 the distribution of geologic folios and at the same time to place these folios where they may serve the widest educational needs, letters were sent to about 150 selected libraries in various parts of the world stating that the folios were available under certain conditions. As a result of these negotiations over 15,000 folios which had accumulated in the stock rooms have been distributed to the libraries of universities, mining schools, and other institutions where they were desired.

The bibliography of North American geology for 1908 was completed, proof read, and issued as Bulletin 409. The corresponding volume for 1909 (Bulletin 444) is well advanced.

The Survey exchange list at present consists of 910 addresses, all of institutions. To these, 62,762 volumes of Survey publications were distributed.

The correspondence consisted of 3,327 letters received and 3,364 letters written, and 82 letters and other papers were translated in the library for the use of other divisions of the office.

The personnel of the library consists of the librarian, the assistant librarian, two cataloguers, and three other persons.

REPORT OF THE GOVERNMENT HOSPITAL FOR THE INSANE.

OFFICERS OF THE HOSPITAL.

BOARD OF VISITORS.

F. M. Gunnell, M. D., U. S. N.,
President of the Board.
Hon. William A. Maury.
G. Lloyd Magruder, M. D.
Mrs. Gardiner G. Hubbard.[a]
Mrs. Henry G. Sharpe.

Walter Wyman, M. D.,
Surgeon-General, P. H. and M. H. S.
Mr. Scott C. Bone.
Brig. Gen. George M. Sternberg, U. S. A.
Rev. John M. Schick, D. D.

Miss Bessie J. Kibbey.

Executive Committee of the Board.

Messrs. Gunnell, Maury, and Sternberg.

Chaplains.

Rev. C. H. Butler.
Rev. W. G. Davenport.

Rev. C. M. Bart.
Rev. Hugh T. Stevenson.

Rev. John Chester, D. D.

MEDICAL STAFF.

Superintendent.

William A. White, M. D.

First Assistant Physician.

M. J. Stack, M. D.[a]

Clinical Director.

Henry W. Miller, M. D.[b]

Assistant Physicians.

B. R. Logie, M. D.[b]
Mary O'Malley, M. D.

George H. Schwinn, M. D.
Alfred Glascock, M. D.

Junior Assistant Physicians.

Nicholas I. Dynan, M. D.
Myer Solomon, M. D.
Wm. L. Sheep, M. D.[b]
Wm. H. Hough, M. D.
Bernard Gleuck, M. D.

Eva C. Reid, M. D.
Rose Alexander, M. D.
M. Edith Conser, M. D.
Harry Sicherman, M. D.
Paul E. Bowers, M. D.

Medical Internes.

Geo. L. Echols, M. D.[b]
Wm. M. Braithwaite, M. D.[b]

Lawrence M. Drennan, M. D.[b]
Larry B. McAfee, M. D.[b]

Pathologist.

I. W. Blackburn, M. D.

Histopathologist.

Nicolas Achúcarro.[b]

Gonzalo R. Lafora.

Psychologist.

S. I. Franz, A. B., Ph. D.

---

[a] Dead.

[b] Resigned.

Assistant in Psychology.

A. H. Sutherland, Ph. D.[a]

Visiting Dentist.

A. D. Weakley, D. D. S.

Dental Internes.

Erwin E. Downing, D. D. S.[a]

Charles R. Irby, D. D. S.

Visiting Ophthalmologist.

Arthur H. Kimball.

Veterinarian.

John P. Turner, V. D. M.

Disbursing Agent.

Miss Alice M. Hardy.[a]

Steward and Disbursing Agent.

Monie Sanger.

Purchasing Agent.

A. E. Offutt.

Matron.

H. O'Brien.

Chief of Training School.

Elizabeth M. Holcomb.[a]

CONSULTING STAFF.

Internal medicine.

Dr. S. S. Adams.
Dr. G. W. Cook.
Dr. Sterling Ruffin.
Dr. James D. Morgan.

General surgery.

Dr. J. Ford Thompson.
Lieut. Col. Wm. H. Arthur, U. S. A.
Dr. G. T. Vaughn.
Dr. W. P. Carr.

Gynæcology.

Dr. Joseph Taber Johnson.
Dr. H. L. E. Johnson.
Dr. J. W. Bovée.
Dr. I. S. Stone.

Ophthalmologist.

Dr. D. K. Shute.
Dr. W. K. Butler.

Laryngology.

Dr. C. W. Richardson.
Dr. J. J. Richardson.
Dr. W. A. Wells.
Dr. F. T. Chamberlin.

Genito-urinary diseases.

Dr. E. F. King.
Dr. Wallace Neff.

Medical zoology.

Dr. C. W. Stiles.
Dr. Thomas A. Claytor.

Bacteriology.

Dr. W. B. French.[b]
Dr. H. D. Giddings.

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[a] Resigned.

[b] Deceased.

REPORT OF THE GOVERNMENT HOSPITAL FOR THE INSANE.

WASHINGTON, D. C., *July 1, 1910.*

SIR: The Board of Visitors for the Government Hospital for the Insane have the honor to submit the fifty-fifth annual report of the hospital, consisting of the report of the superintendent for the fiscal year ended June 30, 1910, and his recommendations.

The board has to record the death during the year of one of its members, Mrs. Gardiner G. Hubbard, which occurred by accident on the 20th of October, 1909. On December 23, 1909, the President appointed Miss Bessie J. Kibbey to fill the place made vacant by Mrs. Hubbard's death.

Respectfully,
F. M. GUNNELL, M. D.,
President of the Board of Visitors.
WM. A. WHITE, M. D.,
Superintendent, Secretary of the Board ex officio.

The SECRETARY OF THE INTERIOR.

REPORT OF THE SUPERINTENDENT.

MOVEMENTS OF POPULATION.

On June 30, 1910, there were remaining in the hospital 2,916 patients, as against 2,852 remaining on June 30, 1909, an increase of 64 over the previous year. During the year there were 650 admissions, an increase of 41 over the year 1908–9. The number of admissions added to the number remaining on June 30, 1909, makes a total of 3,502 patients under treatment during the year, an increase of 76 over the previous year. The number of discharges, including the deaths during the year, was 586, an increase of 14 over the previous year. The daily average population for the year was 2,872.91, as against 2,801.66 for the previous year, showing an increase of 71.25 against the increase of the preceding year of 136.96. On June 26, 1910, the patient population of the hospital reached its high-water mark, namely, 2,925.

The following table shows the movements of population more comprehensively, and has divided the male, female, the white, and the colored:

Movement of population, fiscal year ended June 30, 1910.

	Male.		Female.		Total.
	White.	Colored.	White.	Colored.	
Remaining June 30, 1909	1,730	380	486	256	2,852
Admitted during the year ended June 30, 1910	411	85	87	67	650
Total number under treatment	2,141	465	573	323	3,502
Discharged:					
Recovered	74	21	31	15	141
Improved	49	5	17	3	74
Unimproved	50	5	20	6	81
Not insane	18	2	5	5	30
Died	148	41	42	29	260
Total	339	74	115	58	586
Remaining June 30, 1910	1,802	391	458	265	2,916

BUILDINGS AND GROUNDS.

Amusement hall.—Hitchcock Hall has been entirely completed and has been used upon several occasions. The first occasion of its use was a play acted and managed entirely by the officers and employees of the hospital. Since then it has been used for the nurses' graduating exercises and for various other assemblings. A moving-picture outfit has just been purchased, and it is hoped that this will add much to the value of the entertainments during the coming winter.

Power, heating, and lighting plant.—An addition to the new power, heating, and lighting plant has been completed. Four 300-horsepower boilers have been installed and are now in working order. This was the first step in the remodeling of this plant and the whole electrical layout of the institution, and contemplates the covering of the three boiler plants under one roof. The old boiler house has already been abandoned, so that the number of boiler plants has been reduced at the close of the fiscal year from three to two.

A new concrete tunnel has been built between the old and the new boiler houses, thus connecting the new plant with the old portion of the hospital and doing away with one of the danger points in the new system, namely, the old wooden conduit running between the new and old boiler houses. The steam piping in this tunnel has been completed.

A new concrete tunnel up the hill back of the power house has been started, and about 90 per cent of the work is completed. It is intended to replace the old wooden trestle which connects the boiler house with the hospital extension.

The coal trestle at the pump house has been overhauled and put in good condition.

Contract has been entered into for the first change in the electrical generating apparatus. This, in the main, will consist of substituting an alternating current generator on one of the 500-horsepower McIntosh & Seymour engines in place of the direct current generator and making the necessary changes in the switchboard.

Contract has been made to retube the old boilers at the pumping station, and this work is already under way. An agreement has been entered into to cover the steam pipes in the tunnel and around the boiler plant with 85 per cent magnesia covering.

The work of rewiring the old buildings so as to receive the alternating current is going forth, and already a number of the buildings have been completed.

In the change from the direct to the alternating current the wires will be taken out of the tunnels, which also carries the steam pipes, and placed in vitrified terra-cotta conduit. About 48,000 feet of this conduit has been received and about 24,000 feet more ordered. The work of laying this conduit is about 70 per cent completed. About 4,560 linear feet of trench has been dug and about 12,500 linear feet of three-way duct laid. Manholes have been built at frequent intervals, and about 850 feet of drain pipe has been laid to drain them.

Annex.—The frame building known as the annex, which was built some years ago to take care of the overcrowded condition, has been torn down. It has been felt for some time that this building was dangerous, and it was long since abandoned as a building for the criminal insane. In the event of fire, however, it was so near Howard Hall that if the wind had been in that direction it might have made it necessary to remove the criminal insane from that building. It was thought best, all things considered, therefore, to remove this possibility of danger by tearing down the building.

Oaks A.—The remodeling of the upper floor of Oaks A building has been completed, thus increasing the capacity of the building materially and providing quarters on the top floor for a physician and a few married employees.

Bake oven.—For some time past the single rotary oven in the bakery department has hardly been equal to the work, and a contract was entered into at the close of this year for furnishing an additional oven, which will be installed at the earliest possible date.

Laundry.—The laundry is being thoroughly overhauled, new machinery is being installed, remodeled where needed, particularly in the old drying room.

Poultry house.—The poultry house, which was removed to Godding Croft farm, is now in full use. Four new incubators have been purchased, and other necessary supplies to increase the production of chickens and eggs. The tearing down of the old poultry house has much improved the appearance of the east side of Nichols avenue.

Dairy herd.—At the close of this year 25 additional cows were purchased, in order to keep the supply of milk up to the required amount. We have now down on the farm 90 heifer calves of our own raising, and it is hoped that in the future we will be able to replenish our herd without going into the market.

Circulating library.—Several hundred additional volumes have been added to the circulating library for patients. This library is doing good work and the circulation of books from it is constantly increasing. A "question box" has been added during the past year.

Miscellaneous.—An automatic drinking fountain has been purchased and will be erected on the grounds where it will be of use, particularly to patients, so that they will not have to go back to their ward when they wish a drink of water. A large power hammer has been purchased for the blacksmith, and considerable material in the way of plows, harrows, cultivators, mowers, etc., for the farm and grounds, including nine horses. A considerable amount of furniture has been purchased, including typewriters for the office. At the close of the present year nearly all of the porches of the new buildings have been replaced, and a number of windows rehung, and new floors have been laid, so that the buildings are now for the most part in a good state of repair. New closets and traps have been ordered to replace many of those that are not giving good service in the new buildings. These will be installed at the earliest possible date.

A 12-inch pipe-threading machine has been contracted for and will shortly be put in service in the machine shop. This has been needed for a considerable time as the hospital has never been able to cut pipe larger than 6 inches. Our large piping had to be sent to the city to be threaded.

ADMINISTRATIVE DEPARTMENT.

OFFICE OF THE STEWARD AND DISBURSING AGENT.

The greatest change in the personnel of this department which has taken place during the year was the resignation of Miss Alice M. Hardy, disbursing agent, after twenty-three years of faithful and efficient service to the hospital. The position made vacant by her resignation was filled by combining the duties of this position with the duties of the steward, and appointing the steward to the position of disbursing agent. The work in this department is in excellent condition, constant effort being made to keep it up to the highest standard of modern accounting methods.

Farm and garden products during the year ended June 30, 1910.

Apples, crab	barrels	18
Apples, green	do	415
Beans, lima	bushels	183
Beans, string	barrels	215
Beets	bunches	7,341
Cabbage	heads	29,979
Cabbage sprouts	barrels	124
Cantaloupes		7,165
Carrots	bunches	8,606
Celery	do	9,447
Cherries	quarts	1,080
Chicken	pounds	1,504
Corn:		
Green	ears	18,318
Shelled	bushels	176
Ear	barrels	184
Cucumbers		4,710
Currants	quarts	190
Ducks	pounds	20
Eggs	dozen	6,362
Eggplant		5,069
Figs	bushels	13
Grapes	pounds	21,645
Honey	do	1,408
Kale	barrels	348
Lettuce	heads	10,548
Milk	gallons	91,615
Onions:		
Dry	barrels	12
Green	bunches	36,204
Oyster plant	bunches	5,215
Parsley	do	16,173
Parsnips	barrels	181
Pears	bushels	151
Pease, green	do	99
Peppers, green	do	75
Pork	pounds	18,985
Potatoes:		
Irish	bushels	969
Sweet	do	1,854
Pumpkins		1,150
Radishes	bunches	30,780
Rhubarb	do	800
Spinach	barrels	219
Squash, summer		6,159
Tomatoes	bushels	1,375
Turnips	do	1,542
Watermelons		536
Timothy hay	tons	14
Corn, green	do	266
Cowpeas, green	do	169
Cowpeas, hay	do	17
Wheat and clover, green	do	25
Clover and orchard grass	do	51
Straw, rye	do	20
Rye, green	do	74
Hay, oat	do	12
Sweet-potato roots	bushels	414

Work done in mattress shop during the year ended June 30, 1910.

Mattresses made and made over		1,198
Mats made:		
Braided		244
Drawn		42
Pillows made and made over		1,161
Hair renovated	pounds	25,125
Clothing repaired	pieces	559
Hose repaired	pairs	700

Work done in Howard Hall work room.

Clothes repaired	pieces	4,173
Suits cleaned and pressed		4
Chairs caned		43
Cloth mats made		69
Mittens and gloves made	pairs	301
Knee pads made	do	16
Curtains hemmed		25

Work of sewing and mending rooms during the year ending June 30, 1910.

ARTICLES MANUFACTURED.

Aprons:	
Barbers'	3
Dining room	72
Gingham	148
White	898
Bags:	
Clothes	15
Jelly	10
Bath tubs, canvas	1
Bibs	62
Blouses	819
Canvas bedsides	2
Caps:	
Rubber	24
Dairy	24
Cases:	
Bolster	4
Pillow	3,396
Pillow, rubber	19
Chemise	759
Cloths, table, long	189
Cloths, table, short	251
Coats:	
Brown linen	1
Cashmere	1
Denim	2
Flannel	1
Jean	1,138
Overall	472
Cords and tassels	42
Corner pieces	6
Covers:	
Bureau	221
Car	36
Corset	3
Couch	2
Cushion	8
Piano	1
Pillow, linen	6
Screen	168
Sideboard	9
Stand	579
Table	1
Table, billiard	2
Curtains:	
Holland	1,469
Cotton	1
Sash	12
Swiss	102
Transom	109
Dentists' cases	2
Drawers:	
Boys' canton flannel	19
Men's canton flannel	2,889
Men's cotton	6
Women's cotton	470
Dresses:	
Denim	21
Gingham	678
Night, long	225
Night, short	513
Percale	140
Gowns, operating	6
Jackets, boys' blue flannel	1
Jackets, pneumonia	4
Pants:	
Boys'	19
Blue flannel	2
Dairy	36
Jean	1,457
Linen	1
Overall	847
Soldiers'	1,049
Outing	4
Petticoats:	
Cotton	561
Red flannel	1
Sacques, percale	2
Sheets:	
Double	95
Single	5,262
Shirts:	
Boys' canton flannel	30
Men's canton flannel	2,150
Check	3,402
Night	1,074
Outing	4
Percale	4
Shirt waists	34
Skirts:	
Cashmere	1
Denim	6
Gingham	11
Percale	1
Spreads, Swiss	2
Strops, razor	2
Strainers	47
Suits, canvas	7
Ticks:	
Mattress, double	7
Mattress, single	297
Pillow	220
Towels:	
Bath	2,197
Roller	2,057
Tea	1,962
Underhandkerchiefs	353
Vests	270

REPAIRS AND MISCELLANEOUS WORK.

Blankets, hemmed	1,674
Napkins, hemmed	1,107
Names sewed on	11,039
Rugs, bound	183
Suits cleaned and pressed	88
Miscellaneous repairs.....pieces..	51,588

WARD SERVICE.

In July last Cherry ward, in the old center, was reopened as a ward for invalid officers, with a capacity of 10 patients. It was placed in charge of a female nurse and has been of great assistance in caring for this class of patients. In April the remodeling of Oaks A was completed and was opened with a capacity of 9 beds for white female tubercular patients.

The employment of female nurses on the male wards has been still further extended during the year. Cherry ward, which was opened for the invalid officers, was placed in charge of a woman. A student woman nurse has been added to both B-1 and B-2 wards, 2 to R building, while Allison B, D-1, and D-2 have been turned over to the care of female nurses during the current year. At the close of the year on June 30, 1910, 533 male patients were being cared for, in whole or in part, by female nurses.

Clinical records.—There has been a steady effort to improve the condition of the records, and during the year a uniform method of examination has been put into service in order to unify the clinical records as far as possible.

Staff conferences.—During the year 542 cases have been brought into the staff conferences. Thirty-seven of this number were presented for diagnosis, 76 for trial visit, 356 for discharge, and 76 for final diagnosis (deaths).

Training school.—Sixteen nurses, 13 women and 3 men, graduated from the training school. Thirty undergraduates, 20 women and 10 men, successfully passed the examination. It is to be noted that the junior class this year is the largest in the history of the hospital. The course of instruction has been extended so as to include additional practical work.

Infectious diseases.—During the year 2 cases of diphtheria occurred in male employees. The source of infection could not be definitely determined, but as the disease was prevalent in the neighborhood of the hospital where some of our employees live, it is probable that it was derived from this source. There were 4 cases of typhoid fever, 2 white male patients and 2 male employees. The source of infection was traced by a medical officer of the Public Health and Marine-Hospital Service to the home of a colored male helper in the kitchen attached to the service on which all the cases occurred. This employee was undoubtedly a typhoid carrier, and after his separation from the service no further cases developed. There were 2 cases of measles, 1 in a male employee and 1 in a female employee. A mild epidemic of mumps occurred among the stable hands, 6 employees and 1 patient being infected.

Physical diseases treated during the year ended June 30, 1910.

Disease.	Male.				Female.				Total.
	White.		Colored.		White.		Colored.		
	Patient.	Employee.	Patient.	Employee	Patient.	Employee.	Patient.	Employee.	
General diseases.									
Infectious diseases:									
Diphtheria		2							2
Erysipelas	2				5		5	3	15
Gonorrhœa	6							1	7
Influenza	54	21	18	5	24	13		1	136
Malaria	27		4			1			32
Measles		1				1			2
Parotiditis	1	6							7
Syphilis—									
Secondary	8								8
Tertiary	3								3
Tonsillitis	58	38	35	2	4	9	5	2	153
Tuberculosis—									
Joint	1								1
Lymphatic glands			1				1		2
Miliary	1								1
Pulmonary	15		4		14		7		40
Typhoid fever	2	2							4
Other general diseases:									
Anæmia	3								3
Diabetes, mellitus	1				1				2
Leukæmia, splenomyelogenous	1								1
Rheumatism, articular	41	2	3						46
Diseases of the nervous system and organs of special sense.									
Cerebral embolism	1								1
Cerebral hemorrhage	5		1		2				8
Cerebral œdema	1								1
Conjunctivitis	33	7	4			1			45
Corneal ulceration	1								1
Hemiplegia	2								2
Hordeolum					1	2			3
Iritis	1		1						2
Neuralgia	20	4	2						26
Neuropathic decubitus	3		1						4
Neuro-retinitis	2								2
Otitis media	6	1	2						9
Paralysis, bulbar	1								1
Sciatica	1								1
Sinusitis, frontal	1					1			2
Status epilepticus	1				1		1		3
Torticollis	1		1						2
Diseases of the circulatory system.									
Anasarca	1		1						2
Cardiac valvular disease	22		6		7		7		42
Endocarditis	2				1				3
Gangrene of—									
Leg	1								1
Toe	1								1
Hemorrhoids	24	2	2		1		1		30
Myocarditis	2				1				3
Pericarditis	1								1
Varicocele	1								1
Diseases of the respiratory system.									
Asthma	1		2						3
Bronchitis	75	48	48	1	7	3			182
Hæmoptysis	2								2
Hay fever	2								2
Laryngitis	4	7							11
Pharyngitis	8	7			1	1	1		18
Pleurisy	2	1	3			1		1	8
Pneumonia:									
Broncho	22	1	1		2		1		27
Hypostatic	7		1						8
Lobar	6		1		9		2		18
Traumatic	1								1
Pulmonary gangrene	5		1		1		1		8
Pulmonary œdema	4								4
Rhinitis	48	52	41		6			1	148

Physical diseases treated during the year ended June 30, 1910—Continued.

Disease.	Male.				Female.				Total.
	White.		Colored.		White.		Colored.		
	Patient	Employee.	Patient.	Employee.	Patient	Employee.	Patient.	Employee.	
Diseases of the digestive system.									
Appendicitis	3		2				1		6
Carcinoma of gall bladder	1								1
Carcinoma of jaw	1								1
Carcinoma of larynx	1								1
Carcinoma of liver and pancreas			1						1
Carcinoma of sigmoid flexure	1								1
Carcinoma of stomach					1				1
Carcinoma of tongue	1								1
Cholangitis	1								1
Cholecystitis	1				1		1		3
Colic:									
Biliary	1								1
Intestinal			1						1
Colitis	8		1						9
Diarrhea	15								15
Dysentery	5								5
Enteritis	34	1	5		6		3		49
Entero-colitis	25	1							26
Fistula in ano	1								1
Gastritis	19	5			4		1		29
Hematemesis	1								1
Hemorrhage, intestinal	1		1						2
Indigestion	13	1			2	2			18
Intestinal parasites:									
Oxyuris	1								1
Tinea saginata					1				1
Peritonitis							1		1
Diseases of the genito-urinary system.									
Balanitis	2								2
Cystitis:									
Acute	8		2		9	1	1		21
Chronic	12		3		2		1		18
Hematuria	1		1						2
Nephritis:									
Acute	5	1							6
Chronic	15		6		13	1	4		39
Paraphimosis	2								2
Prostatitis	5								5
Pyelonephritis	1								1
Urethritis	6								6
Diseases of the skin and cellular tissues.									
Abscesses:									
Minor	85	5	9		10	5	2		116
Psoas						1			1
Tubercular	1					1			2
Acne varioliformis	1								1
Acne vulgaris	1								1
Bursitis			1						1
Carbunculosis	6				1				7
Cellulitis	9					1			10
Cysts, sebaceous	1								1
Dermatitis:									
Simplex	3					1			4
Venenata		2	1		1				4
Dhobie itch	2								2
Eczema	18		4						22
Epithelioma of hand	1								1
Erythema					1				1
Furunculosis	35	6	1		2		1		45
Herpes zoster	3		1						4
Ingrowing nails	2				2				4
Onychia	5								5
Paronychia	1	2							3
Pediculosis	2								2
Pemphigus	1								1
Psoriasis	2								2
Seborrhea	1								1
Tinea, circinati	4				1				5

Physical diseases treated during the year ended June 30, 1910—Continued.

Disease.	Male.				Female.				Total.
	White.		Colored.		White.		Colored.		
	Patient.	Employee.	Patient.	Employee.	Patient.	Employee.	Patient.	Employee.	
Diseases of the skin and cellular tissues—Continued.									
Ulcers:									
Simple	20						1		21
Syphilitic			1						1
Varicose	13		1						14
Urticaria	1	1							2
Diseases of the organs of locomotion.									
Arthritis	1								1
Lumbago	1		2						3
Rheumatism	14		2						16
Accidental traumatisms.									
Burns	16	2	1		2		2	1	24
Dislocation of humerus	2		1			1			4
Dislocation of interpharangeal	1								1
Dislocation of thumb	2								2
Fracture of clavicle	2		1		1				4
Fracture of femur	6				5				11
Fracture of humerus	2								2
Fracture of inferior maxilla	2								2
Fracture of metacarpal bone	4	1				1			6
Fracture of nasal bones	1								1
Fracture of patella	1								1
Fracture of radius	2								2
Fracture of radius and ulna	1				1				2
Fracture of ribs	4	1	2						7
Fracture of ulna	1								1
Rupture of spleen, traumatism	1								1
Sprains	2				3				5
Wounds:									
Contused	74	8	2			1			85
Incised	86	5	1	1	2		1		96
Infected	42	3	7		1	2			55
Lacerated	92	26	43		1		3		165
Punctured		5	2				1		8
Miscellaneous.									
Childbirth					1				1
Undetermined fever	4	2							6
Total	1,319	280	290	9	162	51	56	10	2,177

Causes of death during the year ended June 30, 1910.

	Male.		Female.		Total.
	White.	Colored.	White.	Colored.	
General and infectious diseases.					
Anæmia, unclassified			1		1
Erysipelas			1		1
Leukæmia, spleno-myelogonous	1				1
Tuberculosis:					
Peritoneal		1			1
Pulmonary	11	2	5	7	25
Intestinal	1				1
Diseases of the nervous system.					
Bulbar paralysis	1				1
Cerebral arteriosclerosis	6	2	6	2	16
Cerebral atrophy and exhaustion	1				1

Causes of death during the year ended June 30, 1910—Continued.

	Male.		Female.		Total.
	White.	Colored.	White.	Colored.	
Diseases of the nervous system—Continued.					
Cerebral embolism	1				1
Cerebral hemorrhage	5	1	1		7
Cerebral œdema	1	1			2
Cerebral softening		3	1		4
Cerebral syphilis	1				1
Epilepsy and exhaustion	1			1	2
Intra-cranial tumor	3			1	4
Katatonia and exhaustion	1	1			2
Leptomeningitis, acute	1				1
Organic brain disease			1		1
Pachymeningitis, interna	1				1
Paresis	18	11		1	30
Senile dementia and exhaustion	2			2	4
Sinus thrombosis				1	1
Status epilepticus	1		1	1	3
Diseases of the circulatory system.					
Aneurism of aorta	1	1			2
Cardiac valvular disease	16	5	6	3	30
Cardiac rupture	2				2
Endocarditis, acute			1		1
Endocarditis and myocarditis			1		1
Myocarditis, acute	2				2
Myocarditis and pericarditis	1				1
Pericarditis	1				1
Diseases of the respiratory system.					
Asphyxiation:					
Accidental			1		1
From epileptic convulsions	1	1			2
Suicidal	2				2
Carcinoma of larynx	1				1
Empyema		1			1
Pneumonia:					
Broncho	21		6	3	30
Hypostatic	18	2			20
Lobar	2		2	2	6
Traumatic	2				2
Pulmonary gangrene	5	1	1	1	8
Pulmonary hemorrhage	1				1
Pulmonary œdema	1				1
Pulmonary thrombosis			1		1
Diseases of the digestive system.					
Abscess, retropharyngeal	1				1
Carcinoma of gall bladder	1				1
Carcinoma of liver and pancreas		1			1
Carcinoma of sigmoid flexure	1				1
Carcinoma of stomach			1		1
Carcinoma of tongue	1				1
Cholecystitis	1		1	1	3
Colitis, acute	4				4
Colitis, chronic ulcerative	1	1			2
Diarrhea and exhaustion			1		1
Epitheloma of mouth	1				1
Gastric ulcer		1			1
Hernia, strangulated	1				1
Ileo-colitis	1			1	2
Intestinal obstruction	1		1		2
Peritonitis, acute				1	1
Diseases of the genito-urinary system.					
Nephritis, chronic parenchymatous			1		1
Pyleonephritis	1	2	1	1	5
External causes.					
Fracture of ribs, with pneumonia		1			1
Rupture of spleen, traumatic	1				1
Total	150	39	42	29	260

The following operations were performed during the year, in addition to which 485 minor operations by members of the medical staff:

Operations performed during the year ended June 30, 1910.

	Male.	Female.	Total.
Appendectomy	2	1	3
Cholecystectomy	1		1
Craniotomy	1		1
Excision of elbow	1		1
Excision of tumor of mammary gland		1	1
Fracture of clavicle, reduction of	3	1	4
Fracture of femur, reduction of	6	5	11
Fracture of humerus, reduction of	2		2
Fracture of inferior maxilla, reduction of	2		2
Fracture of patella, reduction of	1		1
Fracture of radius, reduction of	2		2
Fracture of radius and ulna, reduction of	1	1	2
Herniotomy	1		1
Hysterectomy		1	1
Total	23	10	33

Work of hydrotherapeutic department.

	Male.		Female.		Total.
	White.	Colored.	White.	Colored.	
Number of patients	165		143	80	388
Number of treatments	11,524		8,580	7,168	27,272

Dr. A. D. Weakley, in charge of the dental department, submits the following report of work done during the year:

Work of dental department during year ended June 30, 1910.

Number of teeth extracted	622
Number of treatments	488
Silver fillings	189
Cement fillings	135
Gutta-percha fillings	20
Mouths cleaned	128
Local anesthetic cases	52
Maxillary fracture	1
New artificial dentures	26
Artificial dentures repaired	29
Impressions taken	50
Teeth crowned	13
Prescriptions	51
Total number of patients treated	1,396

Dr. Arthur H. Kimball, in charge of the eye, ear, nose, and throat department, submits the following report of work done during the year:

Work of eye, ear, nose, and throat department during year ended June 30, 1910.

Number of visits	56
Examinations and treatments:	
Refractions	314
Diseases of the eye	185
Diseases of the ear	64
Diseases of nose and throat	77
Operations	9
Total	649

SCIENTIFIC DEPARTMENT.

On January 1, 1910, the position of scientific director was created. In brief, the duties of the director were outlined as: (a) The administrative control of the various laboratories; (b) the oversight and direction of the scientific work to bring about coordination; (c) the collaboration with the general clinical ward work; and (d) the instruction of the internes.

Of the material advances, two are to be mentioned here, the arrangements for keeping animals for experimental work, and the addition to the teaching equipment of an epidiascope. Other increases in laboratory equipment will be considered in the reports of the different laboratories. During the year two small houses, formerly occupied by the poultryman, were arranged for the reception and keep of animals for experimental purposes. This is in line with the investigation needs in all other branches of medicine, viz, the supplying of opportunities for the experimental investigation of problems that are suggested by the examination of the pathological material peculiar to this type of medical institution. It is well known that diseases other than mental can not be well studied and thoroughly understood unless the lesions or conditions are reproduced artificially and the natural history of the lesions be investigated. On the mental side the studies of origins are known to have a value for the understanding of the abnormal mental states, and on the neurological side it is equally true that the understanding of the pathological pictures in disease must be sought in the genesis of the pathological elements that make up the picture. Great progress can therefore be said to have been made by the introduction of this point of view, i. e., the experimental in opposition to the strictly descriptive. Although it will be utilized to the greatest extent by the scientific departments, the epidiascope will be of great value to other members of the staff for lectures, demonstrations, etc. The research possibilities of such an instrument are at present not well understood, but it appears to have a function here as well as for demonstration work.

The staff of the scientific departments is as follows:

Dr. S. I. Franz, scientific director and psychologist.
Dr. I. W. Blackburn, pathologist.
Dr. W. H. Hough, clinico-pathologist.
Dr. G. R. Lafora, histopathologist.
Dr. A. H. Sutherland, assistant in psychology.
1 technician, 1 photographer, 1 janitor.

Plans have been made for cooperation in work between the pathologist, the histopathologist, and psychologist in some lines in which it is essential or best to have such cooperation. The problems selected for study are those in which it seems neccessary to have more careful examinations than those made for the clinical records to correlate with the gross and finer pathological changes in the brain and spinal cord.

The present and the former histopathologist have cooperated in the examination of material necessary in work performed by the psychologist, such cooperation being to the advantage of the research and to the hospital on account of each part being performed by the one most capable of doing it. Another research in which the cooperation of the histopathologist and the psychologist is needed is planned and will be begun as soon as possible.

Collaboration with the clinical work has been done as far as possible. A new scheme of examination was devised and put into operation which is intended to make the records more complete and more uniform than heretofore. Two of the clinical staff have had opportunities to work in the pathological laboratory under the direction of Doctor Achúcarro and thus to acquire a knowledge of the general histopathology of the insane.

A course of instruction to the internes was given by the superintendent and the four members of the scientific staff during the months of January, February, and March. Twenty-two exercises were given in this course, as follows:

1. Doctor White, "Introduction; general standpoint."
2–7. Doctor Franz, "Neurological and mental methods."
8–11. Doctor Achucarro, "Histopathology."
12–14. Doctor Blackburn, "Brain anatomy."
15–17. Doctor Hough, "Clinico-pathological methods."
12–22. Doctor Franz, "Clinical mental examinations."

These exercises were attended not only by the internes, for whom they were given, but also by more than one-half of the other members of the staff. After the completion of the course an examination was held. In addition to the internes, two junior assistant physicians took the examination that it might be counted on their record in case of promotion.

This course acts as a post-graduate course to fit the internes for the hospital work and to make them acquainted with matters not treated in their previous medical instruction. Three objects are aimed at: First, and of most importance, the internes are instructed in facts and methods that they may perform their regular ward and clinical work more systematically and better, and that they may have a minimal amount of knowledge concerning certain important matters connected with the nervous system and its functions; second, the scientific departments are seen in their relation to the regular ward clinical work and there is possible an orderly presentation of the facts that should be mutually known and appreciated; third, sufficient advanced instruction in the different topics are given to the internes that they may have an understanding of research work in connection with psychiatry and that they may have some acquaintance with methods that will enable them to contribute to the advancement of our understanding of the insanities.

The 17 regular lectures and demonstrations will undoubtedly be added to during the coming year and the course be thereby made more comprehensive.

During the year the scientific activity of the department has been evidenced by the publication of many articles dealing with different phases of the subject, and the second bulletin of the hospital is composed entirely of the work of the research staff.

Psychological laboratory.—During the year an electric stove was installed for work in connection with cerebral physiology, and two other pieces of apparatus for the use of the psychologist have been obtained. One of these, an electric thermo-cautery, was supplied to the psychologist by the Carnegie Institution for the better carrying out of experiments on the cerebrum. The other, a simple pupilometer, was constructed by the psychologist with materials furnished by him. No other changes in the equipment of the laboratory have occurred.

During the year the following investigations were in progress:

1. Changes in the volume and pulse of the cerebrum coincident with mental and physical operations. This work was undertaken in conjunction with Dr. A. H. Sutherland, and the work is finished so far as it can be with the materials at hand. Before the work is prepared for publication it is possible that more experiments of a similar nature may be necessary, but this matter can not be determined at present. Curves showing the variations in the pulse and volume changes have been obtained in the normal resting condition (horizontal and vertical positions), with muscular work, and with mental operations especially of an emotional character.

2. Normal variations in touch sensations in different bodily segments. In connection with the examination of patients certain differences have been noted from time to time, but it has not been possible to make good comparisons on account of the fact that the normally expected conditions were unknown. For this reason a number of normal people were examined and the touch thresholds on different parts of the body were determined. Ninety-five points were selected so that the distributions of all the main peripheral and spinal nerves were represented by at least one point. On each subject all the points were tested ten times, and a total of about 5,000 determinations of thresholds was made. These results have been compiled and calculated, and comparisons of the parts of the body were made. An article giving the results of this study was written and published in Bulletin No. 2 of the hospital.

3. Skin sensations accompanying local anesthesia. In connection with the sensory examination of certain patients apparently abnormal results were obtained which could not be explained by comparison with the results of similar tests on normal people or on those with nerve lesions. It was thought that some indication of the reason of the differences might be obtained by producing a temporary anesthesia, and in conjunction with Prof. W. C. Reudinger, of the George Washington University, a series of experiments was begun on the sensory changes accompanying the well-known local anesthetics. The experiments on the action of ethyl chloride have been finished, but not yet put into shape for publication. It is hoped that we shall be able to continue this and similar work, and thus to add something to the understanding of the skin sensations and at the same time to a better appreciation of the action of local anesthetics and analgesics.

4. Sensations following nerve division. An opportunity of examining an additional case with a peripheral nerve lesion was presented to me, and in connection with the work already published an opportunity was taken to review all the recent contributions to the subject, which was not possible at the time the first work was published.

5. Reactions of the insane to stimuli of a painful character. In the course of some routine neurological examinations of patients unsuspected reactions to sensory stimuli were found and a comparison of a number of results seemed to indicate that the reactions coincided with certain types of mental disease. Only desultory observations on this subject have so far been made, but this work also demands a certain amount of similar work on normal people for purposes of comparison. An opportunity has been offered to examine a number of mentally normal people and this will be taken as soon as it can be arranged.

6 Sensory changes coincident with lesion of the postcentral cerebral convolutions. The account of the sensory changes in a patient with a cyst in the postcentral convolutions has been written and sent to an editor for publication.

7. Functions of the anterior and posterior association areas of the cerebrum. A general paper on this subject was read before the Southern Society for Philosophy and Psychology at their meeting in December, 1909, and has been sent to an editor for publication. In this paper a view point of the differences in function of these two large and hitherto poorly understood areas is given, and the hypothesis that is advanced helps to the understanding of certain physiological conditions that have hitherto been baffling.

8. Relation of visual sensations and perceptions to the occipital cerebral lobes. In this work monkeys were trained to visuomotor habits and the relation of the formation and the retention of these habits to different parts of the occipital cortex was sought. At the present time some interesting phenomena have been recorded and the results obtained lead to a temporary working hypothesis that the occipital cortex cells are not necessary for the performance of all acts that depend upon visual so-called perceptions. The results appear at variance with those of several investigators whose results are almost universally accepted, but those obtained here are so clear cut there can be no doubt regarding their accuracy. This work has had the cooperation of Doctors Achúcarro and Lafora, histopathologists, who have been of the greatest assistance in the careful examination of the brains of the animals. Should similar results be obtained from other animals that will be experimented with, it will completely change our conception of the usual course of cerebral processes in connection with these simple associations, and it will in a way systematize, although perhaps complicate, our conceptions of the normal working of the cerebrum.

9. Certain color and other relational reactions of the monkey. In conjunction with the preceding work, certain incidental observations on the ability of the monkey to discriminate color and size were made with the assistance of Doctor Sutherland. The results obtained are complete in themselves and will be published as a separate article. The observations indicate an ability on the part of these animals to form certain kinds of judgments with which they have not previously been credited. The results are of importance in the help they give toward the understanding of certain methods that may be utilized in connection with cerebral physiology. Under this heading there may also be mentioned the fact that the work of Mr. W. T. Shepherd on the mental processes of the Rhesus monkey has been finished and will, it is expected, soon be published.

10. During the year a new syllabus of methods for the examination of patients was devised and has been put in operation. This syllabus has been the basis of an article, and will be published in a forthcoming number of the American Journal of Insanity. The making of the syllabus is in line with the general endeavor to systematize and to standardize the methods of examination of the patients so they may be utilized for future study as well as for present purposes of diagnosis. In the making of records several factors must be considered. It is of the first importance that facts should be recorded in the histories rather than conclusions from the facts, for the facts will remain,

while the conclusions may vary according to the understanding of the different facts. The facts are now gathered and recorded, and this is to a great extent due to the uniform methods of examination that are now required to be pursued. A second desideratum is that the facts be obtained under essentially similar conditions. The comparison or correlation of facts obtained under dissimilar conditions is of slight value, and the observations can be put to little scientific use. The attempt to have the conditions similar is made by the employment of the same method by all the examiners, and this attempt is in the main successful. It is, however, impossible to have all the methods of all examiners alike if the methods are qualitative in character, and to bring about a much greater uniformity it is essential that the qualitatively obtained facts be supplanted by those obtained in a quantitative manner. For part of the mental examination this is already done by the use of exactly similar tests, but there is not such an uniformity in the gathering of the facts regarding the reflexes and other neurological conditions. For the latter it may eventually be necessary to employ apparatus, and if appliances can be made that will give quantitative data at the same expense of time as those now obtained by the qualitative methods these appliances should be used. With this object in view a simple pupilometer was constructed to give data regarding the pupillary reactions under standard conditions. This apparatus can be used to collect the necessary facts in the same amount of time as by the use of the older methods, and it is hoped that some day it may supplant the latter. So soon as this apparatus has been carefully worked over, its defects eliminated, etc., it is expected to place it in one of the wards for a careful test, under the actual ward conditions.

Pathological laboratory.—During the fiscal year 161 post-mortem examinations were made, about 69.9 per cent of the total number of deaths. The most essential cooperation of the clinical and pathological branches of the service is shown by the better attendance of the clinical staff, one or more of the attending physicians being present at every autopsy. In a line with this unity of work monthly reports of the autopsy findings and brief synopses of the clinical histories as furnished to the pathologist are now required, and the attending physicians report the deaths, give the clinical histories at length, and present the autopsy records in full at the clinical conferences.

A more careful study relative to the affections of the special senses and the various mental conditions which may possibly be localized has been begun; this will add interest to the work of the pathologist and the clinician as well. In some respects the localization of special brain functions among the insane is peculiarly difficult, but the frequency of arterial diseases and the consequent obstruction of arterial branches leading to definite brain areas offer a field for investigation which should not be neglected. The study of localization by means of secondary degeneration following loss of functions is also an inviting subject for study when supported by accuracy of clinical observation. These subjects, though not strictly belonging to the study of mental diseases, should form an important part of the use of our abundant pathological material. In connection with greater accuracy of clinical observation, the effects of the disease of other organs upon the brain should be the subject of most careful study. In many cases the ætiological relationship may be fairly well determined, and certainly in many the association between acute organic conditions and exacerbations of mental manifestations may be corroborated.

In the coming year closer studies upon the extreme degrees of dementia without arterial disease may result in the establishment of some correlation between the mental failure and some of the localized atrophies of the brain, especially of the frontal lobes. A number of such cases have already been collected to form the nucleus of such study. The study of the relation of the cytological elements of the cerebro-spinal fluid to the conditions of the meninges of the brain and cord as found at autopsy will continue to engage our attention. It is especially desirable that the congestive and acute meningeal types of general paralysis should be differentiated in this way from those not presenting these characteristics.

The table of pulmonary tuberculosis is herewith continued. It will be observed that during the year 25 deaths were attributed to pulmonary tuberculosis; 16 of them did not come to autopsy. In the autopsy work were found 21 active cases, 28 latent cases, plus the 16 which were based upon clinical diagnosis, equals 65 cases in all, found during the year out of 260 deaths. The statistics of the death rate, however, are not based upon the number of cases found, but upon the number of deaths attributed to the disease.

Analysis of deaths due to tuberculosis for fiscal years ended June 30, 1885–1910.

Date.	Deaths.	Post-mortem examinations.	Cases not examined, post-mortem.	Deaths due to pulmonary tuberculosis.	Well-marked tubercular cases, post-mortem.	Cases of latent or limited pulmonary tuberculosis found in autopsies.	Total of pulmonary tubercular cases examined, post-mortem.	Cases of tuberculosis among those not examined by autopsy, based upon clinical diagnosis.	Total of all cases of death with pulmonary tuberculosis, clinical and post-mortem.	Percentage of tubercular cases among those that died, recognized clinically and at autopsy.	Percentage of those examined, post-mortem which showed tubercular lesions.	Cases which died of other diseases than tuberculosis.
1885	105	69	36	13	18	3	21	2	23	21.9	30.4	92
1886	102	72	30	24	26	1	27	8	35	34.3	37.5	78
1887	92	49	43	13	9	1	10	9	19	20.6	20.4	79
1888	120	79	41	14	14	6	20	8	28	23.3	25.3	106
1889	114	67	47	23	19	3	22	10	32	28.0	32.8	91
1890	140	108	32	20	22	10	32	6	38	27.1	29.6	120
1891	128	79	49	21	13	5	18	13	31	24.2	22.7	107
1892	153	96	57	13	13	9	22	9	31	20.2	23.0	140
1893	181	117	64	22	34	9	43	8	51	28.1	36.7	159
1894	167	115	52	28	27	13	40	13	53	31.7	34.7	139
1895	179	125	54	18	20	6	26	11	37	20.6	20.8	161
1896	187	119	68	21	23	11	34	12	46	24.6	28.5	166
1897	162	90	72	13	15	4	19	9	28	17.2	21.1	149
1898	197	85	112	19	17	3	20	14	34	17.6	23.5	178
1899	193	81	112	31	22	3	25	20	45	23.3	30.8	162
1900	184	94	90	25	17	6	23	10	33	17.9	24.4	159
1901	226	109	117	31	27	14	41	16	57	25.0	37.8	195
1902	177	92	85	19	20	7	27	7	34	29.3	29.0	158
1903	258	125	133	36	25	18	43	15	58	22.5	34.4	222
1904	243	103	140	28	15	5	20	13	33	13.6	19.4	215
1905	236	114	122	28	18	6	24	12	36	15.2	21.0	208
1906	202	114	88	29	18	11	29	11	40	19.8	25.4	173
1907	216	128	88	33	16	15	31	17	48	22.2	24.2	184
1908	201	128	73	14	12	15	27	4	31	15.4	21.0	187
1909	255	164	91	38	30	29	59	9	68	26.6	35.9	217
1910	260	161	99	25	21	28	49	16	65	21.1	30.5	235
Total	4,678	2,683	1,995	599	511	241	752	282	1,034	22.5	27.7	4,079

The photographer reports that in addition to making 510 photographs of patients for the case records, he has made 200 miscellaneous photographs, 55 lantern slides, and about 93 pathological photographs for the hospital collection, and 24 bromide enlargements.

Histopathological laboratory.—Doctor Achúcarro was engaged in work at the hospital a total of about sixteen months. The activities of the histopathological laboratory during that time may be roughly divided into three groups: (*a*) Routine work in the examination of the nervous system of cases that come to autopsy; (*b*) research work in human and experimental histopathology of the nervous system; (*c*) demonstration work, including lectures, the preparation of large drawings for teaching purposes, preparation of microphotographs, etc.

(*a*) An attempt was made to study by means of simple methods, giving an insight into the general pathological changes, all cases the autopsy on which was performed not later than twenty-four hours after death. About 150 brains were examined and in many instances the histological study gave valuable aid for diagnosis. In addition to pieces of the brain, cord, peripheral nerves, and spinal and sympathetic ganglia, other organs were occasionally studied. The ideal goal of furnishing to the records of the hospital a histopathological report of every case autopsied could not be reached, both on account of the amount of the valuable material, and the necessity of devoting some time to research work.

(*b*) Among the many problems of interest which were studied several have been finished, some of which are published and some of which are now in press. Materials are in hand for other publications, but they need further study. In addition, some articles on the basis of work begun in other laboratories have been completed and published.

For the purpose of teaching in the teaching course a set of 22 large colored plates illustrating normal and abnormal conditions was made.

The acquisition of a Leitz projection and photographic apparatus has enabled us to start a collection of microphotographs of pathological changes, and a beginning of such a collection has been made with the cerebral cortex. The short time at our disposal has permitted the accumulation of about 30 plates.

In the period of eight weeks following Doctor Achúcarro's resignation and the assumption of the work by Doctor Lafora, there has not been opportunity to do much more than to begin work on certain problems. During this time, however, there has been a continuation of the regular work of the department, that of examining histologically cases that come to autopsy, this examination consisting of routine cutting and staining of all cases, and a more careful examination of those cases that have the autopsy performed within twenty-four hours after death. The following topics of research have been begun; some of these are continuations of work performed elsewhere, and others are new:

1. Studies of connective tissue ependymal plaques. Three new cases of this condition have been found, and although similar to those studied by Doctor Achúcarro, and by others, they have certain differences in structure that make their study of considerable interest.

2. Karyorrhexis of the neuroglia in different nervous and mental diseases, paresis, tubercular meningitis, pellagra, brains with pathological and experimental hemorrhages, gliomas, tubercles of the

brain, Korsakow's disease, etc. This is a continuation of work begun in Madrid. This change or degeneration of the chromatin of the nuclei (karyorrexis) has not been well studied, and it is essential for the understanding of the pathological processes that these important changes in the nuclei be well investigated.

3. Studies of the spinal cords and brains of three cases of pellagra. The specimens which are being studied were supplied to the laboratory through Doctor Lavinder, of the United States Public Health and Marine-Hospital Service, in connection with the commission work on the subject. In these specimens very marked changes in the cells, both in the brain and spinal cord, have been found. There is a marked eccentricity of the nucleus, degeneration of the nucleoli, no neuronophagie, but extensive atrophy of the nerve cells. Most of the previous work on pellagra has been done with the older methods, and there is now in progress a careful examination of these cases by the methods that show the finer details of cell structure.

4. Experimental work on the reaction of the brains of rats and rabbits against foreign bodies, especially the chromatophores of the frog's brain and China ink. The general problem that the present work leads to is the determination of the elements that take part in the regeneration of nervous tissues. Previous work has been done by using inorganic foreign bodies (e. g., China ink), but the present work in which organic pigmented tissues are used it is hoped will give results that will help toward a settlement of the general problem.

5. Experimental work on the influence of cold and of hunger on the neurofibrils. So much importance has been attached to the neurofibrils, both for normal activity and in pathological conditions, that we must investigate all the conditions that may alter their appearance. It will be remembered that these elements vary greatly in disease and that their variation in health is often noted—e. g., their variation concomitantly with sleep (Cajal). At present an attempt is being made to determine some of the conditions that bring about certain of the changes in the neurofibrils, that these may be correlated with some changes that are found to accompany disease.

Clinico-pathological laboratory.—Work has been continued on the cytology, chemistry, and serology of the cerebrospinal fluid. The number of specimens examined during the year was 95. All of these specimens were examined cytologically by Fuchs, Rosenthal, and Alzheimer methods; and chemically for the determination of the protein content by a number of different tests. For the detection of an increase of the globulin content, the Noguchi butyric-acid test, the Nonne ammonium sulphate two-phase reaction, the nitric-acid test, and the ammonium sulphate ring test were applied to a large number of specimens in order to determine the comparative value of these different reactions. A large number of the specimens of the cerebrospinal fluid was examined serologically for evidence of syphilis, by the Wassermann reaction for comparison with the same reaction in the blood serum. A total of 296 Wassermann reactions were done during the year. Investigation is being made on the effect of antisyphilitic treatment on the reaction in ordinary syphilis, as well as syphilis of the nervous system; also the test is being applied to different age sera in order to determine, if possible, when changes occur, and the best age sera to use in routine work.

If time will permit it is hoped to extend the line of serological work to the consideration of the quantitative working of the Wassermann reaction, beginning with the application of the quantitative test to specimens of cerebrospinal fluid and blood of a series of cases of paresis.

During the year 805 urinalyses were made, 292 showed evidences of disease.

There were 157 cases of sputum examined; 22 showed the presence of tubercle bacilli.

There were 20 blood examinations made and 33 miscellaneous examinations, including stomach contents, pus, feces, etc.

Together with Doctor Achúcarro, experiments were made on the effect of inoculation with sporotrichosis on animals, with reference to the effect of this organism on the cerebral cortex.

Together with Doctor Blackburn it is hoped to take up again the study of the cerebrospinal fluid after death, for comparison with the findings during life and for comparison with the pathological findings, especially of the inferior spinal meninges in all cases of paresis, and in all other cases in which an examination of the fluid was made during life.

PUBLICATIONS.

The following publications by members of the hospital staff have appeared during the year:

By William A. White, M. D., superintendent:
- Outlines of Psychiatry. Second edition. 1909.
- The Relation of the Hospital for the Insane to the Medical Profession and to the Community. (Bulletin No. 1, Government Hospital for the Insane, July, 1909.)
- A Case of Unilateral Hallucinosis (alcoholic). (Bulletin No. 1, Government Hospital for the Insane, July, 1909.)
- (*With Doctor Franz.*) The Use of Association Tests in Determining Mental Contents. (Bulletin No. 1, Government Hospital for the Insane, July, 1909.)
- The Duty of the State in Caring for the Dependent Insane. (Proceedings Fifth Maryland Conference of Charities and Corrections, November, 1909.)
- Current Conceptions of Hysteria. (Interstate Medical Journal, January, 1910.)
- The Diagnostics of Dementia Praecox. (Journal of Nervous and Mental Diseases, February, 1910.)
- The New Government Hospital for the Insane. (American Journal of Insanity, April, 1910.)
- Some Recent Psychological Tendencies in Psychiatry. (New York Medical Journal, January, 1910.)

By Capt. R. L. Richards, Medical Corps, U. S. Army:
- Mental and Nervous Diseases in the Russo-Japanese War. (The Military Surgeon, February, 1910.)
- The Study of Cases of Mental Disease from the Standpoint of the Military Surgeon. (The Military Surgeon, May, 1910.)

By Shepherd Ivory Franz, A. B., Ph. D., psychologist:
- The Functional View of the Insanities. (Bulletin No. 1, Government Hospital for the Insane, July, 1909.)
- (*With Doctor White.*) The Use of Association Tests in Determining Mental Contents. (Bulletin No. 1, Government Hospital for the Insane, July, 1909.)
- (*With Doctor O'Malley.*) A Case of Delirium Produced by Bromides. (Bulletin No. 1, Government Hospital for the Insane.)
- Fatigue and Drugs. (Review.) (Psychological Bulletin, vol. 6, 1909, pp. 314–318.)
- Sleep. (Review.) (Journal of Philosophy, Psychology, and Scientific Methods, vol. 6, 1909, pp. 442–443.)
- Functions of the Anterior and Posterior Association Areas of the Cerebrum. (Psychological Bulletin, vol. 7, 1910, p. 66.)
- Bibliography of Abnormal Psychology for 1909. (Psychological Index, No. 16, 1910.)

By I. W. Blackburn, M. D., pathologist:
- The Morbid Anatomy of Mental Disease. (Bulletin No. 1, Government Hospital for the Insane, July, 1909.)
- The Median Anterior Cerebral Artery as Found Among the Insane.
- The Journal of Comparative Neurology and Psychology, vol. 20, June, 1910.)

By Nicolas Achúcarro, M. D., histopathologist:
- The Standpoint of Histopathology in the Study of Mental Diseases. (Bulletin No. 1, Government Hospital for the Insane, July, 1909.)
- Sur certaines lésions en forme de plaques siègeant à l'ependyme des ventricules lateraux. (Trav. du lab. de rech. biol. de l'Univ. de Madrid, 1909.)
- Psiquitria en los E. U. de America. (Rev. clin. de Madrid. Set., 1909.)
- Cellules allongées et Stäbchenzellen, cellules nevrogliques et cellules granulo-adipeuses à la corne d'Ammon du lapin. (Trav. du lab. de rech. biol. de l'Univ. de Madrid, 1909.)

By Henry W. Miller, M. D., clinical director:
- The Present Status of Psychiatry in America. (Bulletin No. 1, Government Hospital for the Insane, July, 1909.)

By Mary O'Malley, M. D., senior assistant physician:
- (*With Doctor Franz.*) A Case of Delirium Produced by Bromides. (Bulletin No. 1, Government Hospital for the Insane, July, 1909.)

By William H. Hough, M. D., clinico-pathologist:
- The Cytological Examination of the Cerebrospinal Fluid. (Bulletin No. 1, Government Hospital for the Insane, July, 1909.)

By Monie Sanger, steward and disbursing agent:
- Business and Professional Organization of the Government Hospital for the Insane. (The Bookkeeper, December, 1909.)

STAFF CHANGES.

On October 17, 1909, Dr. Maurice J. Stack, first assistant physician, died. Doctor Stack had been in the service of the hospital for thirty-three years. During this exceptionally long period of service he was unremitting in his efforts for the welfare of the hospital and for the benefit of the patients.

The following resignations took effect during the year: Dr. A. H. Sutherland, assistant in psychology; Dr. Lawrence M. Drennan, medical interne; Dr. Erwin E. Downing, dental interne; Dr. Larry B. McAfee, medical interne; Dr. William L. Sheep, medical interne; Dr. Benjamin R. Logie, senior assistant physician; Dr. George L. Echols, medical interne; Dr. William H. Braithwaite, medical interne; Dr. Nicolas Achúcarro, histopathologist; Dr. Henry W. Miller, clinical director.

The following new appointments and assignments were made during the year: Dr. Charles R. Irby, dental interne; Dr. Gonzalo R. Lafora, histopathologist; Dr. Francis M. Barnes, medical interne; and Dr. Heber Butts, of the Navy. Doctor Butts was assigned to duty in this hospital by the Surgeon-General on February 25, 1910. The object of this assignment is to make a special study of the subject of military psychiatry as it affects the Navy. By having a medical officer stationed here who comes into first-hand and personal contact with all of the insane of the Navy, it is hoped that many of the problems which are presented, particularly the problem of enlisted men, may be worked out to some sort of satisfactory solution. Doctor Butts is peculiarly well qualified for this work because of his previous service upon the staff of this hospital.

SCIENTIFIC MEETINGS.

During the year there have been seven scientific meetings held at the hospital. The medical staff of the hospital furnished the entire scientific program of all the meetings except that of the American Medico-Psychological Association, and the single exception of a paper by Doctor Jelliffe on the structure and functions of the optic thalmus at the meeting on March 10. The meetings and the papers presented by the medical staff are as follows:

January 20.—Staff meeting:
  Doctor Achúcarro: "Some considerations of the architecture of the cerebral cortex."
  Doctor Miller: "Huntington's chorea" (with demonstration of case).
  Doctor White: "On the examination of mental cases."
February 10.—Staff meeting:
  Doctor Schwinn: "Some of the difficulties encountered in making the diagnosis of paresis."
  Doctor Richards: "Mental and nervous diseases in the Russo-Japanese war."
  Doctor Franz: "Demonstration of a simple pupilometer."
  Doctor Hough: "Methods and results of the Wassermann reaction" (demonstration).
March 10.—Staff meeting:
  Doctor White: "Psychological approach to the problem of art" (illustrated).
  Doctor Jelliffe (of New York): "The structure and functions of the optic thalmus."
  Doctor Franz: "Functions of the cerebellum."
April 5.—Georgetown Clinical Society:
  Doctor Gleuck: "Atypical forms of general paresis."
  Doctor Conser and Doctor Achucarro: "A case showing transition forms between paresis and cerebral syphilis."
  Doctor Franz: "The functions of the occipital lobes in monkeys."
  Doctor Schwinn: "Report of a case of cerebral syphilis."
May 5.—American Medico-Psychological Association:
  Doctor Richards: "Military psychiatry."
  Doctor Miller and Doctor Achucarro: "Report of a case of juvenile general paresis."
June 4.—Society of Research Workers and Experimental Biologists:
  Doctor Franz: "The methods of determining color vision in animals and its cerebral localization."
June 16.—The Society for Mental and Nervous Diseases of the District of Columbia:
  Doctor White: "The theory method and psycho-therapeutic value of psychoanalysis."
  Doctor Hough: "Remarks on the comparative diagnostic value of the Noguchi butyric-acid reaction and the cytological examination of the cerebro-spinal fluid."
  Doctor Franz: "Demonstration of the epiadiscope."

BULLETIN NO. 2.

At the close of the year Bulletin No. 2 is going to press. It contains the following articles:

Doctor Franz:
  "Knee jerk in paresis."
  "Sensations following nerve division."
  "Touch sensations in different bodily segments."
  "Some considerations of the association word experiment."
Doctor Achúcarro:
  "Some pathological findings in the neuroglia and in the ganglion cells of the cortex in senile dementia."
  "Elongated cells; stäbchenzellen, neuroglia cells, and fat-granular cells in the Ammon's horn of the rabbit."

Doctor Achúcarro—Continued.

"On certain lesions in the form of plaques in the ependyma of the lateral ventricules."

"Connective tissue 'plaques' on the surface of the dilated fifth ventricle."

Doctor Hough:

"Remarks on the comparative diagnostic value of the Noguchi butyric-acid reaction and cytological examination of the cerebro-spinal fluid."

GENERAL CONSIDERATIONS.

It becomes necessary again to call to your attention the urgent necessity for acquiring more land and for erecting additional buildings to care for the ever-increasing population of the hospital. It is now ten years since Congress has appropriated any money for the erection of buildings for the housing of patients or employees. Since that appropriation was granted there has been an increase in the patient population of the hospital of over 800, which means, of course, a corresponding increase in the employee population, and yet during this period of time there has been practically no provision for taking care of this increase; for it will be remembered that at the time the appropriation for the hospital extension was granted the institution was then in a terrifically overcrowded condition, so that the 1,000 beds for which that extension was built have long since been filled.

Each year I include, among the items estimated for, appropriations for additional construction, and each year these appropriations are disallowed, until this year the appropriations which I deem necessary for the construction of new buildings, so that the hospital can adequately carry on its work, aggregate upward of $400,000, and this figure will constantly grow so long as appropriations are disallowed; for it will be seen, even by a superficial study of the situation, that with an increase of approximately 100 in the hospital population each year it will require, at a reasonable per capita cost of construction, an outlay of $100,000 a year to keep up with this growth, so that every year that appropriations are delayed not only is there $100,000 added to the requirements of the hospital for building, but the hospital is impaired in its usefulness and the efficiency of its work is not nearly so great as it would be if the building kept pace with the growth of its population.

As the matter stands to-day, aside wholly from the patient population, quarters that are available for medical officers and for employees are all in commission, and it will shortly become a serious problem to know how to take care of the necessary working force of the hospital. This is a matter of quite as much concern as the housing of the patients and one which, like that problem, needs early solution.

It must be remembered in this connection that if an appropriation for new buildings is granted it will be approximately two years before they can be opened for occupation, while if an appropriation for securing plans and specifications only is granted it will be approximately three years before they can be put into commission. During this period of time the population will, of course, go on increasing. The urgency for immediate appropriation for additional construction is therefore great.

The matter of land I have repeatedly discussed in previous reports. The hospital to-day has not sufficient land upon which to raise fodder for its dairy herd, while it is dependent upon this herd for its supply of milk. Then, again, if the hospital is to be maintained year after year and increase in size, it is perfectly obvious that more land must be acquired within the immediate vicinity, adjoining the land already occupied by hospital construction. Every day that the purchase of this land is put off will make it more difficult to secure, as it is being rapidly built up by private parties. Unless it is decided in the very near future to acquire additional land it is going to mean that the growth of the hospital will have to come to a standstill and another institution will have to be constructed elsewhere. It becomes, therefore, of the most urgent importance to decide upon a future policy toward this institution—whether it is to be permitted to grow indefinitely or whether the time has come for building elsewhere. In fact, there are many problems connected with the hospital that require solution. To these problems I most earnestly invite your attention, with a view to outlining a definite policy and securing congressional action thereon.

NEEDS OF THE HOSPITAL.

The appropriations recommended for the fiscal year 1911–12 are as follows: For the support, clothing, and treatment in the Government Hospital for the Insane of the insane of the Army and Navy, Marine Corps, Revenue-Cutter Service, inmates of the National Homes for Disabled Volunteer Soldiers, persons charged with or convicted of crime against the United States who are insane, all persons who have become insane since their entry into the military service of the United States who have been admitted to the hospital and who are indigent, including purchase, maintenance, and driving of necessary horses and vehicles, and of horses and vehicles for official use of the superintendent, for the indigent insane admitted from the District of Columbia, and nonresident insane persons under temporary care, the sum of $657,800. This amount is based on 2,990 patients at $220 per capita. This number is arrived at by estimating the probable increase on the basis of what the increase has been in past years. Pursuing the same method of calculation for the District of Columbia patients, their share is $323,400, leaving $334,400 to be provided for in the sundry civil bill.

For expenses in returning escaped patients to the hospital the sum of $1,500 is needed to be set apart. A decision of the Comptroller prevents the payment of these expenses out of the support fund of the hospital and makes it necessary that a special appropriation be made for this purpose.

The usual authority should be given in the sundry civil bill to use $1,500 in defraying the expense of removal of patients to their friends on leaving the hospital.

A further provision in the same bill is necessary authorizing the sum of $1,000 to be used in the purchase of books, periodicals, and papers for the use of the hospital and for the medical library.

For roadways, walks, and grading, $5,000 is necessary for making the necessary repairs and renewals.

For a new building for the criminal insane to accommodate 120 prisoners, $160,000.

There is no class of patients that the hospital cares for that is more difficult to deal with than the criminal insane. Among them there are many desperate characters, and it becomes of the greatest importance in the first instance to securely confine them so as to prevent their escape from the institution. The present building which is used for the care of the criminal insane is overcrowded, and to that extent inadequate for the purpose to which it is put. It is constructed along lines which make it impossible to add to it and thus increase its capacity, as it is built in the form of a hollow square. Then again in its construction it is not all that could be desired from the point of view of security. Crowding among this class of patients is more serious and more productive of trouble than among any other class of patients we have, as the close confinement renders these patients irritable, and they do not do well when rubbing elbows too closely. It is desirable that an entire new structure for the care of the criminal insane should be built along lines of modern construction, and that it should be planned on a unit basis to permit of indefinite enlargement as necessity may require. The present building would then do very well for the care of the vicious insane who may not have come within the purview of the criminal law. The per capita cost of construction is in excess of that estimated for for the building of an epileptic colony, for the reason that the type of construction required for this class of patients is of necessity more costly.

For the construction of a house for the superintendent, $40,000.

The building of a separate residence for the superintendent is in line with the policy adopted by other large institutions of this character.

For remodeling of the chapel and the superintendent's present quarters, $10,000.

It is now ten years since Congress has appropriated any money for additional construction for the housing either of patients or employees. During this ten-year period the patient population of the hospital has increased over 800, and there has been a corresponding increase of employees. At the present time all of the quarters for housing the officers and employees of the institution are in use and it is difficult to see just how the next two or three years is going to be cared for in this respect. This appropriation of $10,000, plus the appropriation of $40,000 asked for a house for the superintendent, making a total of $50,000, will make available the old chapel and the present quarters of the superintendent for use as either quarters for patients or employees. It is estimated that a sufficiently large number of people can be housed in these quarters to warrant the expenditure of $50,000; in fact, it is believed that new construction for the number of persons who can be taken care of in this way could not be put up for this amount. It is therefore urged that these two appropriations be allowed on the ground of economy. Whether these quarters should be turned over to the patients, to employees, or to medical officers will depend to a certain extent on the action taken by Congress with respect to the appropriations asked for for new construction.

For the construction and equipment of an epileptic group to accommodate 140 patients, $160,000 is needed.

The hospital has been increasing rapidly in size lately, and the thousand beds for which the hospital extension was constructed are already filled. In certain portions of the hospital we are beginning now to see evidences of crowding. It is therefore the part of wisdom to provide for further growth, and in making this provision it is deemed desirable to build such extensions as will enable a better classification of the hospital population. Whereas the epileptics are at present fairly well segregated, they are in wards that were built for a different class of patients. The buildings of an epileptic group can be so constructed as to admit of indefinite extension, and will give this class of patients a character of surroundings much better suited to them than they now have, while the wards they now occupy can be used for the general purpose of the hospital population. The estimated cost on a basis of $1,000 per capita is considered under all conditions to be reasonable, while $100 per capita has been allowed for equipment. The additional $6,000 is intended to include the cost of the plans, the architects's fees, advertising, etc.

To enable the Secretary of the Interior to purchase additional land for the Government Hospital for the Insane, $100,000, or so much thereof as may be necessary. In the event of his inability to make such purchase, the Secretary of the Interior shall proceed in the manner prescribed for providing a site for the Government Printing Office, in so much of the act of July 1, 1898, as is set forth on pages 648 and 649 of volume 30 of the Statutes at Large, to acquire the land desired; and for the purpose of such acquisition the Secretary of the Interior shall have and exercise all the power conferred upon the Public Printer in such act; the appropriation to be disbursed by the Secretary of the Interior. The need of additional land by the hospital has been appreciated for some time and each successive superintendent for many years past has requested appropriations for its purchase. The need of land has become more acute of late because all of the new construction has been placed upon land previously used for farming purposes, thus restricting the output of the farm to such an extent that it is now impossible to raise enough fodder for the dairy herd. The hospital is increasing in size at the rate of upward of 100 patients per annum, and more buildings must be added in the near future, which will still further infringe upon the land used for farming.

For a new dairy barn, together with the necessary roadways and grading, and the extension of heat, light, and water systems, $50,000.

The present buildings, comprising the barns and piggery, are located on the east side of Nichols avenue and immediately fronting on it. Most of these buildings are very old and in a dilapidated condition. One of these barns constantly requires repairs.

An investigation of the dairy by an expert from the Agricultural Department showed it in a very unfavorable light, and indicated very clearly that steps should be taken to improve the conditions. This can only be done in a satisfactory and economical manner by constructing a new plant. It is believed that with the present agitation of the milk problem in the District, which is resulting in investigations along the broadest possible lines, it would be advantageous from many points of view for the Government to take the initiative in constructing a model and up-to-date dairy plant. There is only one other plant in the District owned by the Government—namely, the Soldiers' Home—which is at the other extreme of the District. The plant at this hospital is in very poor condition. I believe it should be put in the best condition possible for the reasons above stated, in addition to the fact that it is of the highest importance that such an important and staple article of diet in the hospital as milk should be of the best quality—fresh and free from any suspicion of disease. For doing this work, as stated above, $50,000 will be required. I secured the hearty cooperation of the Agricultural Department (to which I desire to extend my thanks) in preparing plans for a model dairy. Its experts have been over the situation and plans have been drawn in the department and estimates prepared of the cost of construction. It will therefore be possible to go to Congress with the most approved plans for this type of building.

For new entrance and gatehouse $8,000 is needed. The building of the hospital extension, with the location of the offices in the new administration building, has removed the center of the institution from the old main building to the present administration building, and makes it desirable to provide a new main entrance at the northern extremity of the administration group.

For an iron fence to be placed along the frontage of the hospital grounds on the east side of Nichols avenue the sum of $14,000 is needed. This portion of the hospital grounds is occupied by four buildings of the hospital extension, which contain approximately 350 patients. There is now along the thoroughfare a dilapidated, unsightly wooden fence, which it is desired to replace with a substantial iron one.

For general repairs and improvements the sum of $40,000 is needed.

Summary.

Support	$334,400
Roadways, walks, and grading	5,000
New building for the criminal insane	160,000
House for the superintendent	40,000
Remodeling of the chapel and the superintendent's present quarters	10,000
Construction and equipment of an epileptic group	160,000
Additional land	100,000
New dairy barn	50,000
New entrance and gatehouse	8,000
Iron fence	14,000
Repairs and improvements	40,000
Total	921,400

STATISTICAL TABLES.

Admissions and discharges.

REMAINING JUNE 30, 1909.

	Male.			Female.			Total.
	White.	Colored.	Total.	White.	Colored.	Total.	
Army	850	48	898				898
Navy	222	19	241				241
Public Health and Marine-Hospital Service	30	9	39				39
Civil life	628	304	932	486	256	742	1,674
Total	1,730	380	2,110	486	256	742	2,852

Admissions and discharges—Continued.

ADMITTED DURING THE YEAR.

	Male.			Female.			Total.
	White.	Colored.	Total.	White.	Colored.	Total.	
Army	172	11	183				183
Navy	72	4	76				76
Public Health and Marine-Hospital Service	8		8				8
Civil life	159	70	229	87	67	154	383
Total	411	85	496	87	67	154	650

DISCHARGED DURING THE YEAR—RECOVERED.

Army	42	4	46				46
Navy	15	2	17				17
Public Health and Marine-Hospital Service							
Civil life	17	15	32	31	15	46	78
Total	74	21	95	31	15	46	141

DISCHARGED DURING THE YEAR—IMPROVED.

Army	15		15				15
Navy	2		2				2
Public Health and Marine-Hospital Service	1		1				1
Civil life	31	5	36	17	3	20	56
Total	49	5	54	17	3	20	74

DISCHARGED DURING THE YEAR—UNIMPROVED.

Army	5		5				5
Navy	3		3				3
Public Health and Marine-Hospital Service	1		1				1
Civil life	41	5	46	20	6	26	72
Total	50	5	55	20	6	26	81

DISCHARGED DURING THE YEAR—NOT INSANE.

Army	6		6				6
Navy	3	1	4				4
Public Health and Marine-Hospital Service							
Civil life	9	1	10	5	5	10	20
Total	18	2	20	5	5	10	20

DECEASED DURING THE YEAR.

Army	76	6	82				82
Navy	13	3	16				16
Public Health and Marine-Hospital Service							
Civil life	59	32	91	42	29	71	162
Total	148	41	189	42	29	71	260

REMAINING JUNE 30, 1910.

Army	878	49	927				927
Navy	258	17	275				275
Public Health and Marine-Hospital Service	36	9	45				45
Civil life	630	316	946	458	265	723	1,669
Total	1,802	391	2,193	458	265	723	2,916

Admissions and discharges—Continued.

SUMMARY.

	Male.		Female.		Total.
	White.	Colored.	White.	Colored	
Remaining June 30, 1909	1,730	380	486	256	2,852
Admitted during year ended June 30, 1910	411	85	87	67	650
Total number under treatment	2,141	465	573	323	3,502
Discharged:					
Recovered	74	21	31	15	141
Improved	49	5	17	3	74
Unimproved	50	5	20	6	81
Not insane	18	2	5	5	30
Died	148	41	42	29	260
Total	339	74	115	58	586
Remaining June 30, 1910	1,802	391	458	265	2,916

Admissions and discharges, classified according to sex, for the year ended June 30, 1910, and since opening of the hospital in 1855.

	Year ending June 30, 1910.			Since opening of the hospital.		
	Male.	Female.	Total.	Male.	Female.	Total.
Admitted	496	154	650	14,501	4,137	18,638
Discharged:						
Recovered	115	56	171	4,877	1,080	5,957
Improved	54	20	74	2,189	818	3,007
Unimproved	55	26	81	471	202	673
Died	189	71	260	4,771	1,314	6,085
Remaining	2,193	723	2,916	....	....	....
Total admissions	....	....	....	14,501	4,137	18,638

Percentage of total admissions recovered, improved, etc.

	Male.	Female.	Total.
Recovered	33.63	26.10	31.96
Improved	15.09	19.79	16.14
Unimproved	3.24	4.88	3.61
Died	32.91	31.76	32.65
Remaining	15.13	17.47	15.64
Total	100.00	100.00	100.00

Monthly changes of population.

	Admitted.			Discharged.			Died.			Total.
	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	
1909.										
July	28	17	45	23	13	36	17	7	24	60
August	42	11	53	14	11	25	11	2	13	38
September	45	11	56	17	7	24	21	3	24	48
October	48	11	59	20	3	23	11	4	15	38
November	28	10	38	10	9	19	16	8	24	43
December	57	7	64	24	9	33	21	8	29	62
1910.										
January	26	14	40	27	4	31	16	7	23	54
February	40	8	48	14	7	21	17	9	26	47
March	40	10	50	21	6	27	21	7	28	55
April	32	20	52	19	7	26	12	5	17	43
May	50	15	65	12	7	19	17	8	25	44
June	60	20	80	23	19	42	9	3	12	54
Total	496	154	650	224	102	326	189	71	260	586

Admissions, discharges, and deaths, with the mean annual mortality and proportion of recoveries, per cent of the discharges, including deaths, for each year since the opening of the hospital.

Year.	Admitted.			Discharged.												Remaining June 30 in each year.			Daily average.			Percentage of recoveries on discharges.			Percentage of deaths on average numbers.			Percentage of deaths on total number.		
				Recovered.			Improved.			Unimproved.			Died.																	
	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	M.	F.	o tal.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.
1855	26	37	63	....	3	3	....	....	....	....	....	....	....	....	....	26	34	60	19.35	20.65	40.00	.....	100.00	100.00	.....	.....	.....	.....	.....	.....
1855–56	36	11	47	3	2	5	....	....	....	....	1	1	5	3	8	54	39	93	41.20	37.98	70.18	37.50	33.33	35.71	12.13	7.09	10.10	8.06	6.66	7.48
1856–57	25	27	52	2	4	6	3	1	4	7	3	10	8	8	16	59	50	109	54.55	42.80	97.35	10.00	25.00	16.66	14.66	18.69	16.43	10.13	12.12	11.03
1857–58	29	14	43	13	5	18	1	1	2	2	....	2	7	6	13	65	52	117	57.70	50.31	108.01	56.52	44.66	51.42	12.13	11.92	12.03	7.95	9.37	8.55
1858–59	47	18	65	16	5	21	1	4	5	5	3	8	6	4	10	84	54	138	72.93	56.24	129.17	57.13	31.25	47.73	8.22	7.11	7.74	5.36	5.71	5.49
1859–60	68	24	92	26	7	33	4	3	7	3	2	5	13	5	18	106	61	167	100.68	59.00	159.68	56.52	41.17	52.38	12.91	8.47	11.27	8.55	6.41	7.25
1860–61	64	31	95	42	11	53	5	2	7	2	....	2	12	7	19	109	72	181	109.72	64.81	174.57	68.85	55.55	65.43	10.93	10.80	10.88	7.06	7.61	7.82
1861–62	174	12	186	96	8	104	14	1	15	....	....	.....	26	10	36	147	65	212	123.75	65.74	189.49	70.59	42.10	67.09	21.01	15.21	19.00	9.18	11.90	9.81
1862–63	330	25	355	197	6	203	17	1	18	3	3	6	57	4	61	203	76	279	168.41	72.31	240.72	71.89	42.85	70.45	33.84	5.53	25.34	11.95	4.44	10.76
1863–64	484	25	509	282	6	288	69	1	70	5	....	5	67	8	75	364	86	350	205.73	77.66	283.39	66.66	40.00	65.75	42.56	10.30	26.40	11.75	7.92	9.51
1864–65	478	36	514	315	9	324	110	12	122	11	....	11	139	8	147	167	93	200	277.42	33.81	361.23	54.78	31.03	53.64	50.10	9.54	40.69	18.73	6.55	17.01
1865–66	194	28	222	104	5	109	20	7	27	10	1	11	41	12	53	186	96	282	190.92	90.70	281.62	59.42	20.00	54.50	21.47	13.23	18.82	11.35	9.91	10.99
1866–67	88	21	109	45	7	52	11	3	14	11	1	12	19	14	33	188	92	280	189.06	89.46	279.12	52.32	28.00	46.85	10.02	15.65	11.82	6.93	11.96	8.44
1867–68	120	33	153	49	15	64	6	2	8	5	1	6	22	5	27	226	102	328	221.17	96.44	317.61	59.75	65.22	60.95	9.95	5.18	9.50	7.14	4.00	6.23
1868–69	133	35	168	59	11	70	9	6	15	8	2	10	24	9	33	259	109	368	244.55	108.03	352.58	59.00	39.28	54.69	9.81	8.33	9.35	6.70	6.57	6.65
1869–70	146	36	182	32	8	40	16	8	24	11	3	14	15	3	18	331	123	454	294.69	108.08	402.77	43.24	36.37	41.67	5.09	2.77	4.36	3.71	2.05	3.27
1870–71	161	34	195	50	12	62	21	7	28	4	3	7	33	11	44	384	124	508	354.34	121.66	476.00	46.30	36.36	43.97	9.31	9.04	9.24	6.70	7.00	6.78
1871–72	142	44	186	43	8	51	16	13	29	8	1	9	37	7	44	422	139	561	407.21	131.57	538.78	41.34	27.59	38.34	9.09	5.32	8.16	7.04	4.17	6.34
1872–73	153	51	204	49	15	64	23	5	28	3	5	8	32	13	45	468	152	626	431.03	144.11	575.14	45.40	39.47	44.13	7.42	9.02	7.82	5.56	6.84	5.88
1873–74	192	38	230	67	12	79	22	8	30	6	3	9	39	11	50	526	156	682	492.44	151.36	643.80	50.00	35.29	47.02	7.92	7.27	7.76	5.91	5.79	5.88
1874–75	179	51	230	66	9	75	28	22	50	8	3	11	51	7	58	552	166	718	536.46	164.17	700.63	42.13	21.95	38.66	9.50	4.26	8.27	7.23	3.38	6.36
1875–76	166	47	213	67	17	84	26	10	36	1	....	1	48	18	66	570	168	744	564.78	165.59	730.37	47.18	37.78	45.45	8.49	10.87	9.04	6.68	8.45	7.09
1876–77	147	51	198	66	17	83	27	13	40	2	....	2	45	7	52	583	182	765	587.41	176.30	763.71	47.80	45.94	46.89	7.66	3.96	6.80	6.22	3.19	5.52
1877–78	138	44	182	49	11	60	32	9	41	3	4	7	37	9	46	600	193	793	596.82	184.37	781.19	40.49	33.33	38.96	6.19	4.88	5.88	5.13	5.98	4.35
1878–79	169	53	222	68	24	92	30	7	37	3	1	4	51	12	63	617	202	819	619.10	196.70	815.80	44.73	54.54	46.93	8.23	6.10	7.72	6.63	4.87	6.20
1879–80	181	44	225	38	14	52	23	10	33	....	3	3	46	13	59	691	206	897	655.34	196.63	851.97	35.51	35.00	35.37	7.01	6.61	6.92	5.76	5.28	5.65
1880–81	161	62	223	62	10	72	27	9	36	....	6	6	63	18	81	700	225	925	685.37	111.38	896.75	40.78	23.25	36.92	9.19	8.51	9.03	7.39	6.71	7.23
1881–82	178	69	247	62	21	83	31	8	39	2	5	7	74	27	101	709	233	942	697.10	232.88	929.98	36.69	34.43	36.08	10.61	11.59	10.86	8.44	9.18	8.61
1882–83	201	64	265	76	19	95	33	16	49	....	6	6	46	17	63	755	239	994	729.89	235.27	965.16	49.05	31.03	44.13	6.30	7.22	6.52	5.05	5.72	5.22
1883–84	286	64	347	68	13	81	35	8	43	3	1	4	51	16	67	884	262	1,146	797.21	243.27	1,040.48	42.03	34.21	40.51	6.39	6.57	6.44	4.90	5.33	4.99
1884–85	229	91	320	65	24	89	37	12	49	1	1	2	84	21	105	926	295	1,221	902.41	270.89	1,173.34	34.76	41.37	36.32	9.31	7.75	8.94	7.55	5.95	7.19
1885–86	234	69	303	55	22	77	58	15	73	2	3	5	79	23	102	966	301	1,267	936.39	283.23	1,219.62	28.35	34.92	29.96	8.54	8.12	8.36	6.81	6.32	6.69
1886–87	206	62	268	57	15	72	49	17	66	2	1	3	73	19	92	991	311	1,302	956.07	297.36	1,253.43	31.49	28.48	30.90	7.63	6.38	7.34	6.22	5.23	5.99
1887–88	247	71	318	59	10	69	52	14	66	3	1	4	95	25	120	1,029	332	1,361	1,009.55	315.55	1,325.08	28.23	20.00	26.64	9.41	7.92	9.06	7.67	5.64	7.41
1888–89	213	67	380	50	20	70	27	27	54	5	2	6	86	28	114	1,075	322	1,397	1,049.99	323.83	1,373.82	29.94	25.97	28.69	8.19	8.65	8.30	6.92	7.02	6.94
1889–90	274	71	345	39	6	45	43	6	49	....	3	3	112	28	144	1,115	350	1,055	1,108.57	326.53	1,435.10	20.10	13.95	18.12	10.13	9.59	9.76	8.30	7.48	8.04

1890-91	271	81	352	36	30	66	38	15	53	1	1	2	98	30	128	1,253	355	1,608	1,160.62	344.44	1,505.00	20.81	34.47	26.51	8.44	8.71	8.51	6.87	6.96	6.89
1891-92	233	70	303	56	12	68	69	13	82	8	3	11	121	32	153	1,232	365	1,597	1,226.64	348.65	1,575.29	22.05	20.00	21.66	9.86	9.18	9.71	8.14	7.53	8.01
1892-93	261	84	345	57	10	67	46	23	69	4	1	5	140	41	181	1,246	374	1,620	1,255.56	357.02	1,582.58	23.08	13.33	20.81	11.41	11.48	11.44	9.38	9.13	9.32
1893-94	273	88	361	49	13	62	49	16	65	6	....	6	138	29	167	1,277	404	1,681	1,248.16	369.91	1,618.07	20.24	22.41	20.66	11.31	7.84	10.32	9.08	6.27	8.42
1894-95	293	78	371	68	30	98	40	32	72	1	....	1	143	36	179	1,318	384	1,702	1,280.91	386.16	1,667.07	26.98	30.61	28.00	11.16	9.32	10.73	9.10	7.46	8.72
1895-96	278	92	370	74	15	89	39	14	53	7	1	8	146	41	187	1,330	405	1,735	1,290.08	379.25	1,669.33	27.81	21.12	26.40	11.31	10.81	11.20	9.14	8.61	9.02
1896-97	288	88	377	67	17	84	50	44	94	5	....	5	130	32	162	1,367	400	1,767	1,326.08	383.82	1,709.90	26.58	18.27	24.34	9.80	8.33	9.47	8.02	6.49	7.67
1897-98	347	90	437	84	12	96	30	19	49	8	1	9	167	30	197	1,425	428	1,853	1,388.25	409.75	1,798.00	29.06	19.35	27.35	12.03	7.32	10.96	9.74	6.12	8.94
1898-99	498	105	603	173	16	189	59	29	88	38	10	48	158	35	193	1,495	443	1,938	1,438.33	433.51	1,871.84	40.42	17.77	36.48	10.98	8.07	10.31	8.21	6.56	7.85
1899-1900	434	117	551	118	33	151	52	13	65	8	5	13	152	32	184	1,599	477	2,076	1,504.00	444.54	1,948.54	35.75	39.75	36.56	10.10	7.19	9.44	7.87	5.71	7.39
1900-1901	519	136	655	202	33	235	52	25	77	11	6	17	193	33	226	1,660	516	2,176	1,583.33	483.33	2,066.66	44.10	34.02	42.34	12.19	6.83	10.93	9.11	5.38	8.27
1901-2	532	154	686	209	39	248	78	20	98	9	11	20	137	40	177	1,759	557	2,316	1,675.85	518.16	2,194.01	48.26	34.51	45.42	8.17	7.70	8.06	6.24	5.97	6.18
1902-3	554	180	734	211	50	261	106	25	131	19	6	25	189	69	258	1,782	587	2,369	1,737.58	553.58	2,291.16	39.73	33.33	38.32	10.88	12.47	11.26	8.17	9.36	8.45
1903-4	584	182	766	194	42	236	95	35	130	21	13	34	189	54	245	1,867	625	2,492	1,783.08	577.00	2,360.08	38.87	29.16	36.70	10.60	8.66	10.29	7.98	6.50	7.75
1904-5	493	174	667	151	53	204	101	42	143	12	9	21	181	55	236	1,912	639	2,551	1,848.50	598.00	2,446.50	33.70	33.12	33.55	9.79	9.19	9.64	7.66	6.88	7.47
1905-6	421	180	601	173	60	233	94	33	127	29	13	42	150	52	202	1,887	661	2,548	1,887.50	654.50	2,542.00	38.34	37.34	38.07	7.94	7.95	7.94	6.42	6.34	6.40
1906-7	437	182	619	136	45	181	82	52	134	28	12	40	165	51	216	1,913	683	2,596	1,898.10	671.83	2,569.93	32.60	27.50	31.17	8.69	7.60	8.40	7.09	6.05	6.82
1907-8	472	171	643	123	39	162	80	30	110	28	5	33	156	45	201	1,998	735	2,733	1,965.70	699.00	2,664.70	31.52	32.77	32.40	7.93	6.43	7.54	6.54	5.27	6.20
1908-9	517	174	691	133	60	193	52	30	82	35	7	42	185	70	255	2,110	742	2,852	2,061.00	740.66	2,801.66	31.11	34.13	31.99	8.97	9.46	9.10	7.35	7.70	7.44
1909-10	496	154	650	115	56	171	54	20	74	55	26	81	189	71	260	2,193	723	2,916	2,138.91	734.00	2,872.91	23.00	26.89	24.06	8.87	9.67	9.05	7.25	7.92	7.42

Thirty "not insane," 20 males and 10 females, are included with recovered in 1909-10.

Nativity of patients admitted during the year and since the opening of the hospital in 1855.

	During year.	Since 1855.		During year.	Since 1855.
Native born:			**Foreign born—Continued.**		
Alabama	4	63	Brazil	....	1
Arkansas	1	35	British East Indies	1	8
Arizona	....	1	British Columbia	....	1
California	3	33	British Possessions	....	2
Colorado	2	13	British West Indies	....	13
Connecticut	3	123	Buenos Aires	....	3
Dakota	....	12	Canada	5	152
Delaware	....	37	Cape Verde Islands	....	1
District of Columbia	84	2,387	Chile	....	1
Florida	1	22	China	....	2
Georgia	7	111	Coast of Africa	....	3
Illinois	10	260	Costa Rica	....	1
Indiana	10	236	Cuba	....	7
Indian Territory	....	18	Cyprus	....	1
Iowa	1	54	Denmark	3	51
Kansas	2	48	England	10	396
Kentucky	9	246	Finland	1	10
Louisiana	2	57	France	2	108
Maine	8	148	Germany	19	1,633
Maryland	43	1,395	Greece	....	8
Massachusetts	12	561	Holland	....	19
Michigan	4	122	Hungary	2	24
Minnesota	1	27	Iceland	....	1
Mississippi	1	61	Ireland	24	2,306
Missouri	11	146	Italy	4	81
Montana	1	3	Japan	1	10
Nebraska	....	10	Korea	....	1
New Hampshire	....	92	Malta	....	3
New Jersey	3	177	Mexico	1	15
New Mexico	....	4	New Brunswick	....	4
New York	32	1,168	Newfoundland	....	3
North Carolina	3	166	New Grenada	....	1
Ohio	26	630	Norway	....	68
Oklahoma	....	2	Nova Scotia	....	23
Oregon	....	5	Panama	....	1
Pennsylvania	23	964	Philippine Islands	....	2
Rhode Island	....	55	Poland	4	36
South Carolina	2	63	Portugal	....	8
Tennessee	5	150	Prince Edward Island	....	3
Texas	5	66	Prussia	....	34
Utah	....	3	Roumania	....	5
Vermont	3	75	Russia	8	84
Virginia	58	1,862	Sandwich Islands	....	3
West Virginia	3	81	Saxony	....	6
Wisconsin	4	81	Scotland	1	107
United States	150	787	Sicily	....	3
			Spain	....	8
Total	537	12,660	Sweden	4	109
			Switzerland	2	74
Foreign born:			Turkey	....	7
Alsace	....	1	Wales	1	23
Armenia	....	3	West Indies	....	5
Austria	1	79	At sea	1	1
Bahama Islands	....	1	Unknown	18	391
Bavaria	....	17			
Belgium	....	8	Total	113	5,978
Bermuda	....	1			
Bohemia	....	8	Grand total	650	18,638

Ages of patients admitted during the year ended June 30, 1910.

	Male.	Female.	Total.		Male.	Female.	Total.
9 to 15 years	5	2	7	50 to 60 years	30	17	47
15 to 20 years	21	7	28	60 to 70 years	66	9	75
20 to 25 years	84	18	102	70 to 80 years	39	10	49
25 to 30 years	73	14	87	80 to 90 years	10	3	13
30 to 35 years	60	18	78	Unascertained	6	....	6
35 to 40 years	55	31	86				
40 to 45 years	31	11	42	Total	497	153	650
45 to 50 years	17	13	30				

Civil condition of patients admitted during the year ended June 30, 1910.

	Male.	Female.	Total.
Single	283	61	344
Married	130	60	190
Widowed	44	31	75
Unknown	40	1	41
Total	497	153	650

Duration of mental diseases of patients who died during the year ended June 30, 1910.

	Male.	Female.	Total.		Male.	Female.	Total.
Under 1 month	5	1	6	4 to 6 years	15	7	22
1 to 2 months	4	3	7	6 to 10 years	24	7	31
2 to 4 months	5	1	6	10 to 15 years	12	5	17
4 to 6 months	7	2	9	15 to 20 years	9	4	13
6 to 9 months	7	1	8	20 to 25 years	6	2	8
9 to 12 months	12	4	16	Over 25 years	20	10	30
1 year to 18 months	17	5	22	Unascertained	1	....	1
18 months to 2 years	16	4	20				
2 to 3 years	16	6	22	Total	189	71	260
3 to 4 years	13	9	22				

Ages of patients who died during the year ended June 30, 1910.

	Male.	Female.	Total.		Male.	Female.	Total.
10 to 15 years	1	....	1	50 to 60 years	27	13	40
15 to 20 years	....	3	3	60 to 70 years	50	14	64
20 to 25 years	4	....	4	70 to 80 years	50	11	61
25 to 30 years	12	5	17	80 to 90 years	8	5	13
30 to 35 years	11	6	17	Over 90 years	....	1	1
35 to 40 years	10	1	11				
40 to 45 years	10	4	14	Total	189	71	260
45 to 50 years	6	8	14				

Ages of patients discharged recovered during the year ended June 30, 1910.

	Male.	Female.	Total.		Male.	Female.	Total.
10 to 20 years	7	4	11	50 to 60 years	4	8	12
20 to 30 years	46	11	57	60 to 70 years	7	....	7
30 to 40 years	25	15	40				
40 to 50 years	6	8	14	Total	95	46	141

Duration of residence in the hospital of those recovered during the year ended June 30, 1910.

	Male.		Female.		Total.
	White.	Colored.	White.	Colored.	
10 to 20 days	2	....	1	1	4
20 to 30 days	....	1	1	1	3
1 to 2 months	2	1	4	1	8
2 to 3 months	6	1	2	1	10
3 to 4 months	8	2	3	1	14
4 to 6 months	20	3	2	3	28
6 to 9 months	17	3	7	3	30
9 to 12 months	6	2	2	....	10
1 to 2 years	8	5	6	3	22
2 to 4 years	3	2	2	1	8
Over 4 years	2	1	1	....	4
Total	74	21	31	15	141

Forms of mental disease in patients discharged as recovered during the year ended June 30, 1910.

Disease.	Male.		Female.		Total.
	White.	Colored.	White.	Colored.	
Infection—Exhaustion psychoses:					
Acute confusional type	1	2		1	4
Other types	2	3			5
Toxic psychoses—Exogenous:					
Alcoholic psychoses—					
Delirum tremens	5	1	5	1	12
Acute hallucinosis	6	1		1	8
Acute psychoses, unclassified	3				3
Pathological drunkenness	1	1			2
Chronic alcoholism	3	1	1	2	7
Paranoid states of varied etiologies	4				4
Manic-depressive psychoses	15	3	16	5	39
Dementia præcox:					
Hebrephrenic form	15	1	1	2	19
Catatonic form	3	2	2	1	8
Paranoid form				1	1
Unclassified	5	3	2	1	11
Excitement, unclassified	3				3
Depression, symptomatic	1				1
Depression, unclassified	1	2			3
Anxiety psychosis			1		1
Psychoses associated with—					
Epilepsy	3	2			5
Hysteria	2		1		3
Psychasthenia			1		1
Arteriosclerosis	1				1
Total	74	22	30	15	141

Forms of mental disease of patients admitted during the year ended June 30, 1910.

Disease.	Male.		Female.		Total.
	White.	Colored.	White.	Colored.	
Infection—Exhaustion psychoses:					
Acute confusional type	1			1	2
Septic delirium				1	1
Other types	2	1	1		4
Toxic psychosis—Exogenous:					
Alcoholic (other than Korsakow's psychosis)	31	2	6	4	43
Opium			1		1
Morphine	4				4
Paranoia and paranoid states not otherwise classified	28	5	8	5	46
Manic-depressive psychoses	25	5	9	13	52
Dementia præcox	139	26	30	26	221
Paresis	37	13	1		51
Excitement, unclassified	5	1	1	1	8
Dementia, unclassified			1	1	2
Simple depression	3	1	4	2	10
Hallucinosis, unclassified				1	1
Psychoses associated with other diseases:					
Psycho-neuroses—					
Epilepsy	12	8	1	6	27
Hysteria	2				2
Other nervous diseases—					
Huntington's chorea	2				2
Polyneuritis (including Korsakow's psychosis)	1		1		2
Organic disease and injury to the brain—					
Arteriosclerosis	46	5	9		60
Syphilis	4	1			5
Traumatism	1				1
Tumor				1	1
Diseases other than nervous—					
Psychoses associates with visceral disease		2			2
Involutional melancholia	6		4		10
Senile dementia	35	6	4	1	46
Imbecility	2	6	3		11
Not insane	19	3	3	4	29
Undiagnosed	6				6
Total	411	85	87	67	650

Detailed statement of receipts and expenditures for the fiscal year ended June 30, 1909—additional.

RECEIPTS.

On hand:		
Support	$3,247.28	
Repairs	24.87	
Disallowances	3.26	
		$3,275.41

EXPENDITURES.

Provisions and stores:		
Crockery, etc		4.69
Furniture and bedding:		
Furniture	$318.30	
Upholstery and furniture material	100.00	
Carpets, etc	1,292.87	
		1,711.17
Farm and garden:		
Lawns, roads, and grounds		168.30
Miscellaneous:		
Supply transportation	2.57	
Messages	22.99	
Advertisements	.72	
Transportation of patients	3.00	
		29.28
Books and stationery:		
Books		6.00
Construction:		
Electrical supplies		1,093.02
Repairs:		
Construction		1.68
Balance in United States Treasury:		
Support	238.08	
Repairs	23.19	
		261.27
		3,275.41

Detailed statement of receipts and expenditures for the fiscal year ended June 30, 1910.

RECEIPTS.

Appropriated for:	
Support	$322,300.00
District of Columbia patients	301,400.00
Marine-hospital patients' board	10,178.99
Repairs	40,000.00
Building and grounds	5,000.00
Power, heating, and lighting plant	100,000.00
Miscellaneous receipts	65,066.91
Disallowances	18.09
On hand, buildings and grounds	26,087.95
	870,051.94

EXPENDITURES.

Provisions and stores:		
Class 1. Farinaceous food	$38,761.81	
Class 2. Yeast	636.62	
Class 3. Meats, fresh	43,744.94	
Class 4. Poultry	4,039.10	
Class 5. Meats, salt and smoked	21,713.99	
Class 6. Fish, fresh	5,270.07	
Class 7. Fish, salt	2,823.66	
Class 8. Vegetables, fresh	6,613.99	
Class 9. Vegetables, canned	2,183.75	
Class 10. Fruits, fresh	369.99	
Class 11. Fruits, dried	3,529.64	
Class 12. Preserves and jellies		
Class 13. Dairy products	25,582.27	
Class 14. Groceries, wet	5,964.40	
Class 15. Groceries, dry	27,339.54	
Class 16. Condiments	72.98	
Class 17. Laundry supplies	5,780.92	
Class 18. Crockery and china	2,740.84	
Class 19. Tin and iron ware	226.61	
Class 20. Cutlery and plated ware	81.31	
Class 21. Household supplies	3,961.92	
Class 22. Wooden ware	37.36	
Class 23. Toilet articles	885.45	
Class 24. Fuel	68,841.74	
		$271,202.90
Furniture and bedding:		
Class 25. Furniture	5,210.56	
Class 26. Bedding	9,521.62	
Class 27. Window furniture	1,212.72	
Class 28. Table linen	1,979.23	
Class 29. Upholstery and furniture material	22.90	
Class 30. Sewing-machine supplies	26.55	
Class 31. Carpets, etc	1,776.53	
		19,750.11
Dry goods and clothing:		
Class 32. Clothing, new	4,352.89	
Class 33. Clothing material	12,359.15	
Class 34. Hats, straw	137.71	
Class 35. Hats, felt	361.60	
Class 36. Hosiery	1,039.11	
Class 37. Haberdashery	385.90	
Class 38. Shoes and slippers, men's	6,150.69	
Class 39. Shoes and slippers, women's	349.28	
		25,136.33
Medical supplies:		
Class 40. Medical supplies	4,852.16	
Class 41. Surgical supplies	1,485.35	
Class 42. Laboratory supplies	1,757.88	
		8,095.39
Farm and garden:		
Class 43. Wagons and harness	970.36	
Class 44. Farm and garden implements	883.64	
Class 45. Lawns, roads, and grounds	789.75	
Class 46. Farm supplies	298.77	
Class 47. Horticultural supplies	776.41	
Class 48. Stable maintenance	272.71	
Class 49. Live stock	4,030.00	
Class 50. Farm feed	7,209.72	
Class 51. Dairy feed	16,455.95	
Class 52. Poultry feed	935.12	
		32,622.43

Miscellaneous:		
Class 53. Entertainment of patients	$2,391.00	
Class 54. Traveling expenses	107.50	
Class 55. Supply transportation	10.60	
Class 56. Return of escaped patients	456.52	
Class 57. Messages	1,302.11	
Class 58. Advertisements		
Class 59. Miscellaneous	781.99	
Class 60. Transportation of patients	291.00	
		$5,340.72
Books and stationery:		
Class 61. Stationery supplies	650.45	
Class 62. Printing	2.47	
Class 63. Books	216.65	
Class 64. Periodicals	397.38	
		1,266.95
Construction:		
Class 65. Engineers' supplies	13,111.62	
Class 66. Electrical supplies	12,350.29	
Class 67. Carpenters' supplies	2,668.01	
Class 68. Tinners' supplies	335.37	
Class 69. Painters' supplies	1,980.71	
		30,446.00
Repairs:		
Class 70. Pay roll	24,998.27	
Class 71. Engineers' supplies	1,433.31	
Class 72. Carpenters' and builders' supplies	4,242.56	
Class 73. Tinners' supplies	44.90	
Class 74. Painters' supplies	282.48	
Class 75. Construction	8,845.86	
		39,847.38
Buildings and grounds:		
Class 76. Pay roll, roadways, grading, and walks	629.63	
Class 77. Roadways, grading, and walks	51.72	
Class 78. Furniture for new buildings	50.00	
Class 79. Assembly hall	11,833.18	
Class 80. Power, heating, and lighting plant	28,706.04	
Class 99. Furniture for assembly hall	4,651.37	
Class 100. Electric fire-alarm apparatus	15.00	
		45,936.94
Pay roll:		
Class 81. Officers	29,375.05	
Class 82. Administrative	23,421.57	
Class 83. Ward service	44,592.52	
Class 84. Domestic service	5,942.95	
Class 85. Kitchen service	24,213.15	
Class 86. Industrial	5,667.13	
Class 87. Laundry	11,671.13	
Class 88. Fire	900.00	
Class 89. Engineers	32,462.60	
Class 90. Carpenters and builders	6,140.53	
Class 91. Tinners	900.00	
Class 92. Construction	1,838.33	
Class 93. Painters	4,200.00	
Class 94. Electricians	6,368.00	
Class 95. Farm and garden	16,679.10	
Class 96. Stable	5,547.39	
Class 97. Dairy and cow barns	4,228.49	
Class 98. Lawns and grounds	5,737.83	
		299,885.77
On hand:		
Support	5,217.39	
Repairs	152.62	
Buildings and grounds	13,857.05	
Power, heating, and lighting plant	71,293.96	
		90,521.02
Total		870,051.94

The following summaries of population and expenditures have been prepared in accordance with a resolution of the National Conference of Charities and Corrections adopted May 15, 1906:

Summary of population.

	Male.	Female.	Total.
Number of patients at beginning of fiscal year	2,110	742	2,852
Number of patients received during the year	496	154	650
Number of patients discharged or died during the year	413	173	586
Number of patients at end of fiscal year	2,293	723	2,916
Daily average number of patients	2,139	734	2,873
Average number of officers and employees during the year	495	285	780

Summary of expenditures.

Current expenses:		
Salaries and wages	$299, 233. 56	
Clothing	28, 117. 14	
Subsistence	184, 918. 03	
Ordinary repairs	30, 829. 66	
Office, domestic, and outdoor expenses	145, 798. 48	
Total		$688, 896. 87
Extraordinary expenses:		
New buildings, land, etc	51, 707. 29	
Permanent improvements to existing buildings	39, 847. 23	
Total		91, 554. 52
Grand total		780, 451. 39

REPORT OF THE COLUMBIA INSTITUTION FOR THE DEAF AND DUMB.

OFFICERS OF THE INSTITUTION.

Patron.—William Howard Taft, President of the United States.

President.—Edward Miner Gallaudet, Ph. D., LL. D.

Secretary.—Charles S. Bradley, esq.

Treasurer.—George X. McLanahan, esq.

Directors.—Hon. George C. Perkins, Senator from California; Hon. Charles N. Fowler, Member of Congress from New Jersey; Hon. Thetus W. Sims, Member of Congress from Tennessee, representing the Congress of the United States; Hon. John W. Foster, Hon. Francis M. Cockrell, R. Ross Perry, esq., Theodore W. Noyes, esq., of the District of Columbia; John B. Wight, esq., of New York.

FACULTY OF GALLAUDET COLLEGE.

Emeritus president and professor of moral and political science.—Edward Miner Gallaudet, Ph. D., LL. D.

President and professor of applied mathematics and pedagogy.—Percival Hall, M. A.

Vice-president and professor of languages.—Edward A. Fay, M. A., Ph. D.

Emeritus professor of natural science and lecturer on pedagogy.—Rev. John W. Chickering, M. A.

Professor of history and English.—J. Burton Hotchkiss, M. A., Litt. D.

Professor of mathematics and Latin.—Amos G. Draper, M. A., Litt. D.

Professor of natural science.—Charles R. Ely, M. A., Ph. D.

Professor of physics and biology.—Herbert E. Day, M. A.

Professor of Latin.—Allan B. Fay, M. A.

Instructor in English and in charge of college women.—Elizabeth Peet.

Instructor in mathematics and engineering.—Isaac Allison, E. E.

Instructor in gymnastics.—Albert F. Adams, M. A.

Instructor in drawing.—Arthur D. Bryant, B. Ph.

Instructor in gymnastics and librarian.—Helen Northrop, B. A.

DEPARTMENT OF ARTICULATION.

Professor in charge.—Percival Hall, M. A.

Instructor.—Annie E. Jameson.

Normal fellows.—Mary Bess Michaels, A. B., Vassar College, New York; Madison Johnson Lee, A. B., M. A., Central University, Kentucky.

Normal students.—Maud H. Peet, Yonkers High School, New York; Elwood A. Stevenson, Brooklyn High School, New York; Charles A. Bowles, Colgate University, Maine.

FACULTY OF THE KENDALL SCHOOL.

President.—Percival Hall, M. A.

Principal.—Lyman Steed, M. A.

Instructors.—Melville Ballard, M. S.; Sarah H. Porter, M. A.; Clara Taliaferro; Helen Fay; Musa Marbut, M. A.

Instructor in art and manual training.—Gertrude L. Dunn.

Instructor in cooking.—Adelaide Waring.

Instructor in sewing.—Lydia Suman.

DOMESTIC DEPARTMENT.

Supervisor and disbursing agent.—Wallace G. Fowler.

Attending physician.—D. Kerfoot Shute, M. D.

Matron.—Mary E. Schenck.

Matron, Kendall School boys.—Sadie Fletcher.

Matron, Kendall School girls.—Harriet Vandeventer.

Boys' supervisor.—Charles A. Bowles.

Girls' supervisor.—Slava Snyder, B. A.

Master of shop.—Norman Herrington.

Farmer and gardener.—Edward Mangum.

REPORT OF THE COLUMBIA INSTITUTION FOR THE DEAF AND DUMB.

Columbia Institution for the Deaf and Dumb,
Kendall Green, Washington, D. C., October 20, 1910.

Sir: The number of students and pupils remaining in the institution July 1, 1910, was 116; admitted during the year, 22; admitted for school year 1910–11, 28; total, 166. Under instruction since July 1, 1909, 94 males and 72 females, of whom 104 have been in the collegiate department, representing 33 States, the District of Columbia, and Canada, and 62 in the primary department. Of these, 40 were admitted as beneficiaries of the District of Columbia. During the fiscal year 31 were discharged from the institution by graduation and otherwise.

A list of the names of students and pupils who have been under instruction in this institution since July 1, 1909, will be found appended to this report.

HEALTH.

Good health has prevailed during the year among nearly all the students and pupils. Seven mild cases of measles occurred.

Six cases of diphtheria appeared almost simultaneously during the fall term, but with prompt isolation and disinfection the disease was kept from spreading. Antitoxin was administered in each case, and all the patients recovered rapidly, with no bad after effects.

DESTRUCTION OF DORMITORY BY FIRE.

At about midday on Sunday, February 6, fire was discovered in the roof of the college men's dormitory. Fire alarms were at once sent in, and the young men of the college, with their instructors, did all they could to check the fire with extinguishers and to remove furniture and clothing to places of safety. The Washington fire department responded promptly to the call for help. Owing to the inaccessibility of the fire and the high wind blowing, it was some time before the safety of the other buildings was assured and the blaze finally put out. In the meantime the fire had destroyed the roof and top floor of the dormitory, and the water had ruined a large part of the lower floors, with their furniture, doing damage estimated at $25,000. Fortunately no one was injured.

To repair the damage a special appropriation of $25,000 was granted by Congress in the general deficiency bill. During the summer all repairs necessary for the housing of the students were completed, but many smaller repairs were necessarily postponed, to be done during the present fiscal year.

After the fire the girls of the Kendall School were moved from the top floor of the college girls' building and placed in the large brick cottage formerly occupied by Principal Denison, where they will have more room and, it is thought, will be safer.

In this connection it should be mentioned that the young ladies of the college are living in one of the oldest buildings on the grounds, built in 1867. This structure is not at all fireproof, nor is it of sufficient size to accommodate properly more than 30 students. It should be replaced by a modern fireproof building as soon as possible, with accommodations for at least 50 young ladies and a number of teachers, officers, and servants. Such a building could be erected for $75,000.

COURSE OF INSTRUCTION.

In the fall of 1909 the first class entered the college under the advanced requirements announced the year before. It is gratifying to report that 15 state institutions have already sent students to the college under the new arrangement, and a number of others are preparing to do so in the near future. A young man whose only instruction has been in the Kendall School was among those entering college this fall without conditions, showing that the Kendall School has advanced its standing with practical success.

A synopsis of the course of study as now offered to students of the college is given below:

Synopsis of course for the degree of bachelor of arts.

Year.	First term.	Second term.	Third term.
Preparatory.	Plane geometry.	Plane geometry.	Plane geometry.
	Cæsar.	Cæsar.	Cicero.
	English composition (3 hours). Ancient history (2 hours).	English composition (3 hours). Ancient history (2 hours).	English composition (3 hours). Ancient history (2 hours).
	Also two consecutive hours a week in drawing required of all students of the preparatory class.		
Freshman.	Advanced algebra.	Plane trigonometry.	Mechanics.
	Solid geometry *or advanced Latin.*	Descriptive geometry *or advanced Latin.*	Descriptive geometry *or American literature.*
	English composition A (2 hours). Mediæval history (3 hours).	English composition A (2 hours). Mediæval history (3 hours).	English composition A (2 hours). Modern history (3 hours).
	Also two hours a week in business methods required of all freshmen.		
Sophomore.	Physics.	Physics.	Biology A. Botany.
	Chemistry A.	Chemistry A.	Chemistry B. Qualitative analysis *or spherical trigonometry and surveying.*
	English composition B (1 hour). English literature A (3 hours). Public speaking (1 hour).	English composition B (1 hour). English literature A (3 hours). Public speaking (1 hour).	English composition B (1 hour). Rhetoric (3 hours). Public speaking (3 hours).

Synopsis of course for the degree of bachelor of arts—Continued.

Year.	First term.	Second term.	Third term.
Junior.	French.	French.	French.
	Biology B. Physiology.	Biology C. Zoology.	Political history of the United States.
	Philology *or electricity*.	English literature B *or electricity*.	Ethics and political economy.
Senior.	German.	German.	German and æsthetics.
	Elements of law *or advanced French*.	Astronomy *or advanced French*.	Geology.
	Logic.	Butler's Analogy and International Law.	Psychology.

OPTIONAL STUDIES.

The following courses will be given as sufficient demand for them arises. They may be counted for degrees instead of regular courses, by consent of the faculty:

1. Greek.
2. Mathematics: Analytic geometry, calculus, strength of materials.
3. Domestic economics.
4. Dendrology.
5. Surveying: Leveling, plane surveying.
6. Electricity: Generators, motors, electrotyping.
7. Chemistry: Soils and fertilizers, Chemistry C, advanced qualitative analysis; Chemistry D, quantitative analysis; Chemistry E, organic chemistry; Chemistry F, chemical preparations; determinative mineralogy, assaying.

The course in the Kendall School has been enlarged by the addition of sloyd work for the little boys and cooking and sewing for the girls.

LECTURES.

The following special lectures have been delivered during the year:

IN THE COLLEGE.

Some Chapters in the History of the College, by President Gallaudet.
Le Roy Soleil, by Prof. E. A. Fay.
Dominique de Gourgues, by Professor Hotchkiss.
Two Rustic Inventions: The Support of a Village, by Professor Draper.
The Search for New Forms of Energy, by Professor Ely.
The History and Work of the Carnegie Institution of Washington, by Professor Hall.
The Spelling of the Enlightened, by Prof. A. B. Fay.
Useful and Harmful Bacteria, by Professor Day.

IN THE KENDALL SCHOOL.

Manners and Morals, by Mr. Steed.
The Man Without a Country, by Mr. Ballard.
The Last Hours of General Washington, by Mr. Bryant.
Arabian Nights, by Mr. Schoneman.
Be Strong, by Mr. Bjorlee.
Fairy Tales, by Mr. Brown.
The Fall of Troy: Part I, by Miss Bradley.
The Fall of Troy: Part II, by Miss Key.

RECEIPTS AND EXPENDITURES.

The receipts and expenditures for the year under review will appear from the following detailed statements:

Receipts and expenditures, maintenance of institution.

RECEIPTS.

Balance from old account	$838.53
From the Treasury of the United States	75,499.94
Board and tuition	4,012.40
Manual-labor fund	980.00
General fund	400.00
Total	81,730.87

EXPENDITURES.

Salaries and wages	$50,173.90
Miscellaneous repairs	2,061.37
Household and marketing	4,732.10
Meats	4,956.44
Groceries	2,287.01
Butter and eggs	2,080.05
Bread	1,309.03
Medical attendance and nursing	965.55
Telephone, electric clocks, and fire alarms	198.19
Furniture	420.18
Dry goods	694.24
Gas	1,065.69
Fuel	3,365.06
Feed	1,957.93
Medicines and chemicals	475.56
Books and stationery	751.96
Hardware	289.18
Plants, seeds, and tools	604.80
Blacksmithing	351.40
Carriage repairs	186.70
Ice	323.41
Live stock	1,059.25
Incidental expenses	323.58
Stamped envelopes	63.72
Auditing accounts	300.00
Printing	277.80
Lectures	50.00
Balance	406.77
Total	81,730.87

Receipts and expenditures, special repairs.

RECEIPTS.

Treasury of the United States	$5,000.00

EXPENDITURES.

Painting and carpentering	$387.38
Plumbing	299.46
Mason work	837.53
Paperhanging	208.81
Roofing	40.08
Asphalt paving	2,174.00
Pebble dashing gymnasium	723.20
Steamfitting	329.54
Total	5,000.00

ESTIMATES FOR FISCAL YEAR ENDING JUNE 30, 1912.

The following estimates for the year ending June 30, 1912, have already been submitted:

For the support of the institution (including salaries and incidental expenses), for books and illustrative apparatus, and for general repairs and improvements, $78,500.

For repairs to the buildings of the institution (including plumbing and steamfitting) and for repairs to pavements within the grounds, $5,000.

These estimates give the smallest amount with which the present work of the institution can be properly maintained.

An additional sum of $12,500 is asked for the fiscal year ending June 30, 1912, for the building of a new dairy barn to accommodate 30 cows; for the construction of a milk house and silo; for the repair of present barns and stables; and for adding to and altering the greenhouse.

In the last ten years a large proportion of our college graduates have gone into agricultural work. There is a demand from the alumni of the college and from educators of the deaf for agricultural training of an advanced kind at our institution. The present accommodations for our dairy are not modern. There are at present 6 students and pupils getting some practical instruction on our farm. With a proper equipment the institution would be prepared to offer courses in dairying and farming which would be eagerly sought by deaf young men from many parts of the country.

By increasing the area of beds under glass it will be possible to supply the dining-rooms with better and cheaper vegetable food.

RETIREMENT OF PRESIDENT GALLAUDET.

Dr. Edward Miner Gallaudet, first principal of the Columbia Institution, founder of Gallaudet College, its president for forty-six years, resigned his position as president of the faculties of the college and of the Kendall School on March 16, 1910, to take effect at the beginning of the new school year in the fall. He retains, however, his position as president of the board of directors of the institution.

His resignation was accepted with reluctance by the board of directors and brought forth expressions of regret from the educated deaf and the educators of the deaf in this country and in every country in which the deaf are taught.

In an appendix following this report will be found the action of the board in connection with Doctor Gallaudet's retirement.

DEATH OF JUSTICE BREWER.

Justice David J. Brewer, a member of the board of directors, died suddenly on March 28, 1910. His services to the institution for many years have been untiring and invaluable. The action of the board in connection with his death will be found in the appendix of this report.

CHANGES IN THE CORPS OF OFFICERS AND TEACHERS.

Miss Myrtle Ellis, matron of the institution, resigned in September, 1910, on account of poor health.

Prof. Percival Hall, for fifteen years a member of the faculty of Gallaudet College, has been appointed president of the faculties of the college and of the Kendall School. He assumed his new duties in September, 1910.

Mr. Isaac Allison, instructor in engineering and master of the shop, has been relieved of the shop work and given additional teaching in the college in the line of mathematics.

Miss Helen Northrop, of Oregon, a graduate of our college in the class of 1908, and a successful teacher for two years in the North Dakota School for the Deaf, has been made instructor in gymnastics and librarian of the college.

Mrs. Mary E. Schenck, formerly our associate matron, has been appointed matron in charge of the domestic department.

Miss Elizabeth Peet, of our college faculty, has been relieved of her duties as librarian and put in charge of the health and discipline of the young ladies of the college.

During the year two valued instructors in the Kendall School were removed from our midst by death.

Mr. James Denison, emeritus principal of the Kendall School, died on March 20, 1910, after a lifetime devoted to the elevation of the deaf. He had served the Columbia Institution with faith and zeal for nearly fifty-three years.

Mr. Theodore A. Kiesel, instructor in the Kendall School, died November 17, 1909, after a lingering illness. He had been connected with the institution as a pupil and as a teacher for thirty-five years. He was well and favorably known to teachers of the deaf as an able writer on educational matters.

Mr. Schoneman, boys' supervisor, resigned.

Miss Gertrude L. Dunn, of the Oswego Manual Training School, New York, has been appointed instructor in art and manual training in the Kendall School. She will add basketry, caning, and sloyd to the industrial work of the school.

Mr. Norman Herrington has been made master of the shop and instructor of carpentry.

Miss Lydia Suman has been appointed special teacher of sewing and Miss Adelaide Waring special teacher of cooking. They will give lessons in these subjects to the girls of the Kendall School.

Miss Harriet Vandeventer has been appointed matron of the Kendall School girls, and Miss Slava Snyder, a graduate of our college in 1901, girls' supervisor.

Mrs. Sadie Fletcher has been appointed matron of the Kendall School boys to succeed Mrs. Schenck, and Mr. Charles A. Bowles boys' supervisor in place of Mr. Schoneman.

MEETINGS OF INTEREST TO EDUCATORS OF THE DEAF.

Department 16 of the National Educational Association, the program of which is devoted in part to the study of questions relating to the deaf, met in Boston on July 2–8, 1910.

This institution was represented on the program by Dr. E. A. Fay, vice-president of the college. A large number of deaf people were in attendance at the meeting, and Rev. E. C. Wyand, a graduate of Gallaudet College, presented a strong argument for the combined system of educating the deaf, which is followed by this institution and a large majority of the institutions for the deaf of the United States.

A World's Congress of the Deaf was held at Colorado Springs August 6–13, 1910. About 450 representative educated deaf people from all parts of this country gathered to discuss various matters relating to the welfare of the deaf. The congress strongly indorsed the combined system of education and deprecated attempts to deceive the public in regard to results that may be expected from purely oral teaching.

A short meeting of the alumi association of Gallaudet College was held as part of the congress.

Professor Hall represented this institution at the meetings and was invited to address both the general congress and the alumni association.

For the purpose of studying methods and equipment and of forming closer relations with other schools, Professor Hall visited during the summer the state schools for the deaf at Vancouver, Wash.: Salem, Oreg.; Gooding, Idaho; Ogden, Utah; Colorado Springs, Colo.; Omaha, Nebr.; and Council Bluffs, Iowa.

EXERCISES OF PRESENTATION DAY.

The public anniversary of the college was held in the college chapel on Wednesday, May 4.

Rev. John W. Chickering, emeritus professor in Gallaudet College, offered the opening prayer.

The orations delivered by members of the graduating class were as follows:

Wordsworth as the Poet of Nature; Mary Josephine Gillman, Kansas.
The Fiction of To-day; Alice Nicholson, Florida.
Education, Life, and Work among the Swiss; Gottlieb Bieri, Michigan.
Friendship; Bertha May Thiessen, Washington.

PRESENTATION OF CANDIDATES FOR DEGREES.

Dr. Edward A. Fay, vice-president of the college, presented the candidates for degrees.

For the degree of bachelor of letters.

Maude Elizabeth Roath.

For the degree of bachelor of science.

Arthur Benedict Dillon.
Philip Robert Schroedel, jr.

For the degree of bachelor of arts.

Gottlieb Bieri.
Philip Earl Cadwell.
Mary Josephine Gillman.
Francis Marion Holliday.
Gilbert Jentoft Isackson.
Lulu May Lewis.
Ida May Linabury.
Alice Nicholson.
Bertha May Thiessen.
William Nathan Toomey.

NORMAL FELLOWS.

For the degree of master of arts.

Salva Clarinda Bradley, A. B., William Woods College, Missouri.
Ignatius Thorvald Bjorlee, B. S., St. Olaf College, Minnesota.
Alfred Leslie Brown, B. L., Westminster College, Missouri.

NORMAL STUDENT.

Florence Maude Key, Olathe High School, Kansas.

For the degree of master of arts in course.

Brewster R. Allabough, B. A., Gallaudet College, 1884.

Mr. Ross Perry, representing the board of directors of the Columbia Institution for the Deaf, announced the retirement of Dr. Edward M. Gallaudet as president of the college and of the Kendall School.

Hon. John B. Wight, also of the board, added fitting words of personal appreciation of Doctor Gallaudet's services, and the latter responded briefly, assuring all of his hope for lifelong service in the cause of educating the deaf.

The action of the board, Mr. Wight's remarks, and Doctor Gallaudet's reply will be found in the appendix of this report.

Dr. Merrill E. Gates, formerly president of Amherst College, now secretary of the Board of Indian Commissioners, delivered the address to the graduating class.

He spoke most eloquently of the opportunities of youth to-day, and emphasized the fact that such enlarged opportunities demand greater and better service.

The exercises of the day were closed with the benediction by Bishop Harding.

CONFERRING OF DEGREES.

On the closing day of the term, June 22, degrees were conferred in accordance with the recommendations of presentation day upon all the candidates who had complied with the requirements of the faculty.

All of which is respectfully submitted by order of the board of directors.

E. M. GALLAUDET, *President.*

The SECRETARY OF THE INTERIOR.

CATALOGUE OF STUDENTS AND PUPILS.

IN THE COLLEGE.

- Alabama:
    - Walter D. Bell.
- Arizona:
    - Ethel F. Eaton.
- Arkansas:
    - Ora H. Blanchard.
    - James S. Bowen.
    - Mamie L. Wallace.
    - A. W. Patterson.
- California:
    - Leslie A. Elmer.
    - Edith Nelson.
- Colorado:
    - Mabel J. Jensen.
    - John C. Clesson.
    - Harry Gardner.
- Connecticut:
    - Michael Lapides.
- District of Columbia:
    - Maud E. Edington.
- Florida:
    - Alice A. Nicholson.
- Georgia:
    - Henry S. Morris.
- Idaho:
    - Lulu M. Lewis.
- Illinois:
    - Goldie A. Newman.
    - Iva M. Robinson.
- Indiana:
    - Leon P. Jones.
    - R. O. Yoder.
- Iowa:
    - Luverne S. Byrne.
    - Hubert B. West.
- Kansas:
    - Dora Campbell.
    - Ralph Decker.
    - Edward S. Folz.
    - Mary J. Gillman.
    - John T. Hower.
    - Homer E. Grace.
    - Fred Moore.
    - Cora A. Denton.
    - William Schaefer.
    - Ethel Wickham.
    - Ruth Williams.
- Kentucky:
    - Adolph N. Struck.
- Manitoba:
    - Charlotte H. Jameson.
    - Archibald Wright, jr.
- Maryland:
    - William F. Miller.
- Michigan:
    - Gottlieb Bieri.
    - Ida M. Linabury.
    - Norman D. McDonald.
    - B. E. Maxson.
- Minnesota:
    - Philip E. Cadwell.
    - Mary M. Fossan.
    - Petra F. Fandrem.
    - John M. Jacobsen.
    - E. Schetnan.
- Mississippi:
    - Shelby W. Harris.
- Missouri:
    - Elmer Talbert.
    - Jennie F. Susman.
- Nebraska:
    - Vernon Butterbaugh.
    - Charles Blasing.
    - Anna V. Johnson.
    - Ruia Burt.
    - Harriet Bauman.
    - Eugene Hogle.
    - Nellie Johnson.
    - Stacia Kuta.
    - Eva Redmon.
    - R. W. Mullin.
    - Maude E. Roath.
- New York:
    - Arthur B. Dillon.
    - Edwin W. Nies.
    - Vernon S. Birck.
    - Margaret G. Sherman.
    - Robert Paterson.
    - Frederick G. Fancher.
- North Carolina:
    - Emma L. Pike.
    - George H. Bailey.
    - Virgie A. Haywood.
    - Sarah K. Herring.
    - O. Hunter.
    - Orpah Prevatt.
- North Dakota:
    - Gilbert J. Isackson.
    - Olga Anderson.
- Ohio:
    - William N. Toomey.
    - William H. Arras.
    - Helena Froelich.
    - Ruth Knox.
    - Frances Rumsey.
    - Kreigh Ayers.
- Ontario:
    - Erle Johnson.
- Oregon:
    - Bird L. Craven.
- Pennsylvania:
    - Francis M. Holliday.
    - Philip R. Schroedel.
    - Emily A. S. Blackwood.
    - Mary H. Burns.
    - Hume L. Battiste.
    - Charles W. W. Campbell.
    - J. Wilbur Gledhill.
    - Frederick H. Hughes.
    - W. G. Durian.
    - Rebecca Rosenstein.
- South Carolina:
    - Annie L. Dwight.
- South Dakota:
    - Jessie A. Beardsley.
    - Ella S. Olen.
- Texas:
    - Mary B. Sharp.
    - Thomas L. Anderson.
    - Grover C. Farquhar.

Washington:
    Bertha Thiessen.
    Alice S. Hammond.
West Virginia:
    E. E. Sparks.
Wisconsin:
    Harold Linde.
    Otto Schulze.
Wyoming:
    Baxter W. Mosey.

IN THE KENDALL SCHOOL.

MALES.

Colorado:
    Winfield I. Roller.
Connecticut:
    Walter C. Rockwell.
Delaware:
    Walter Carmean.
    Robert Johnston.
    Raymond Webb.
District of Columbia:
    Raymond Allen.
    Burnham Arnold.
    Benjamin Beaver.
    Frank Berman.
    Wallace Edington.
    Morton W. Galloway.
    William A. Gray.
    Frederick D. Hill.
    William U. Lynch.
    John McIntosh.
    John C. Miller.
    Lee Minter.
    William Conway.
    James A. Nash.
    Francis E. Ridgeway.
    Charles Shepherd.
    Leonard Stark.
    Joseph Stinson.
    Charles Sullivan.
    Philip Thompson.
    Antoni Cicchino.
    Henry Stegemerten.
    B. Cecil Moore.
Minnesota:
    Harvey Flanagan.
New York:
    Clinton F. C. Ensworth.
    Robert E. Conley.
South Carolina:
    Osgood A. Darby.

MALES—continued.

West Virginia:
    Ruric N. Marshall.

FEMALES.

Delaware:
    Ida Ellingsworth.
    Cynthia Hearne.
    Florence Johnston.
    Ellen J. McCabe.
    Mary O'Rourke.
    Olivia Peterson.
    Pearl Roberts.
    Glendora Taylor.
    Mabel M. Sines.
    Annie Lynch.
District of Columbia:
    Mary E. Blocher.
    Myrtle E. Connick.
    Louise Golding.
    Frances Goetz.
    Elsie Hutchins.
    Fannie Hoke.
    Matilda Maddox.
    Annie P. Neitzey.
    Virgie E. O'Neill.
    Pearl J. Pearson.
    Sophia Stansbury.
    Laura Sykes.
    Alice Woolford.
    Florence Young.
    Mildred Mojonnier.
    Elizabeth Arnold.
Illinois:
    Rose Edna Congdon.
West Virginia:
    Narcissa Watts.
    Lulu Watts.

REGULATIONS.

I. The academic year is divided into three terms, the first beginning on the Thursday before the last Thursday in September and closing on the 24th of December, the second beginning the 2d of January and closing the last of March, the third beginning the 1st of April and closing the Wednesday before the last Wednesday in June.

II. The vacations are from the 24th of December to the 2d of January and from the Wednesday before the last Wednesday in June to the Thursday before the last Thursday in September.

III. There are holidays at Thanksgiving, Washington's Birthday, Easter, and Decoration Day.

IV. The pupils may visit their homes during the regular vacations and at the above-named holidays, but at no other time unless for some special urgent reason, and then only by permission of the president.

V. The bills for the maintenance and tuition of pupils supported by their friends must be paid semiannually in advance.

VI. The charge for pay pupils is $250 per annum. This sum covers all expenses in the primary department except clothing, and all in the college except clothing and books.

VII. All deaf-mutes of teachable age, of good mental capacity, and properly belonging to the District of Columbia, are received without charge. To students from the States and Territories who have not the means of defraying all the expenses of the college course the board of directors renders such assistance as circumstances seem to require, as far as the means at its disposal will allow.

VIII. It is expected that the friends of the pupils will provide them with clothing, and it is important that upon entering or returning to the institution they should be supplied with a sufficient amount for an entire year. All clothing should be plainly marked with the owner's name.

IX. All letters concerning pupils or applications for admission should be addressed to the president.

X. The institution is open to visitors during term time on Thursdays only, between the hours of 10 a. m. and 3 p. m. Visitors are admitted to chapel services on Sunday afternoons at 3 o'clock.

XI. Congress has made provision for the education, at public expense, of the indigent blind of teachable age belonging to the District of Columbia. Persons desiring to avail themselves of this provision are required by law to make application to the president of this institution.

APPENDIX A.

RESOLUTION OF THE BOARD OF DIRECTORS ON THE DEATH OF JUSTICE BREWER.

In the death of Justice Brewer the directors of the Columbia Institution for the Deaf have lost a colleague than whom no one among their number was ever more highly esteemed. His devotion to his duties as a member of the board, evidenced by his punctual attendance on its meetings and the wise counsel he was always ready to offer, made him unusually valuable as a director of the institution, while his genial personality and friendly disposition made his presence like a ray of sunshine.

His fellow-members of the board will never cease to mourn his absence, and will cherish his memory as that of "a brother—beloved."

APPENDIX B.

DOCTOR GALLAUDET'S RESIGNATION.

[Extract from minutes of meeting of the board of directors of the Columbia Institution for the Deaf and Dumb, held March 16, 1910.]

Hon. Francis N. Cockrell in the chair. The following resolutions were then prepared and offered by Hon. John W. Foster and Mr. R. Ross Perry and were unanimously adopted, viz:

It was voted—

First. That Doctor Gallaudet's resignation of the office of president of the faculties be, and the same is, hereby accepted, to take effect at the end of the summer vacation next ensuing.

Second. That Doctor Gallaudet's resignation of the office of president of the board of directors be not accepted, and that the board desire that he continue in that office for one year from the time of his relinquishment of the office of president of the faculties; and he is hereby authorized to continue to occupy, as heretofore, the president's house while he remains president of the board.

Third. That the resignation of Doctor Gallaudet is accepted with great regret, and that the resolutions of this board heretofore adopted at the meeting in June, 1907, on the occasion of the fiftieth anniversary of Doctor Gallaudet's connection with this institution (and the forty-third of his election to the presidency), as expressive of its appreciation of his life and the administration of his important office, be, and the same hereby are, repeated upon this occasion, and that they be read on the approaching presentation day.

Fourth. That in view of the long connection of Dr. Edward A. Fay with this institution and of his most competent services, this board would gladly have tendered to him the position made vacant by the resignation of President Gallaudet. It is only the positive statement by the retiring president that Doctor

Fay would not accept the office which deters this board from making this tender. That this resolution shall be entered upon the records of this board as an expression of its regard and its appreciation of the services, character, and ability of Doctor Fay.

Fifth. That Mr. Percival Hall be, and is hereby, appointed president of the faculties, this appointment to take effect at the opening of the ensuing academic year, which will begin in September next.

At the meeting of the board held June 19, 1907, the following resolution was offered by Justice David J. Brewer and unanimously adopted, viz:

We, the directors of the Columbia Institution for the Deaf and Dumb, speaking not for ourselves alone, but for all those who have been or are now connected with it as teachers or pupils, feel that the fifty years' service of President Edward Miner Gallaudet, a service coterminous with the life of this institution, calls for a recognition of the great obligation all are under to him for his faithful and successful labors in the instruction and training of the deaf not only of the District of Columbia, but of the United States and other countries. The son of the founder of deaf mute instruction in this country, he has carried forward his father's work, and has lifted the standard of instruction above the anticipations of the most sanguine.

Not alone in the matter of teaching has the influence of President Gallaudet been felt, but through his personality and character he has largely shaped the lives and increased the happiness of thousands of those who otherwise would have been deprived of much that he has made it possible for them to enjoy.

We therefore place on the records of this institution this testimonial, in grateful recognition of what he has already accomplished, and, together with our congratulations for the past, extend to him our sincere good wishes for increasing happiness and success in (as we hope) a long future of life and service.

REMARKS OF HON. JOHN B. WIGHT.

Mr. President, ladies, and gentlemen, I should like, if I may be permitted to do so, to say a word of personal appreciation of that part of Doctor Gallaudet's work, which is probably better known to me than to any of the other directors, because of my intimate acquaintance with him during the several years I was associated with him in his office, trying to help with the business affairs of the institution.

In all the largely successful affairs of the world the great crowd sees only the result and knows nothing of the heart-wearing details necessary to accomplish the result. Thousands of people in New York use daily the great tubes under the Hudson River and the wonderful subways; the cars pass rapidly through them and one is carried in a few minutes in a manner which a short time ago was inconceivable. Who knows or cares of the struggles and toil that made it possible to accomplish this, or to maintain it? It is equally true with every success, whether it be an engineering achievement, a diplomatic record, a financial undertaking, a political campaign, or an educational institution.

Doctor Gallaudet has always had a threefold problem—the educational, which he ever sought to perfect, enlarge, and advance; the financial, which took of his life's own blood to handle, meeting in congressional committees repulses and insults from those who were afterwards glad to receive benefits from his splendid work for those of their own families or their constituents who needed the college help and could get it nowhere else; and the social life of this beautiful place, with its homes for the professors and teachers, with their families, as well as the institution life of those who taught. I think this last part of the work was not the least difficult, and has been the least appreciated; it was the part of the voyage in which the rocks were not in sight, but they were there and ready to make shipwreck of the craft. With skill and forbearance and self-sacrifice on his part all harm was safely averted.

The institution for more than fifty years has been handled successfully by this wise master in all these three departments, and I, who saw so much of the inner workings and know so well what it cost to achieve this final success, gladly lay my tribute of acknowledgment on the closing page of the splendid record of him who was my father's friend when I was but a boy and who has been my sincere and helpful friend for nearly all my life.

DOCTOR GALLAUDET'S RESPONSE.

Gentlemen of the board of directors of this institution, I hardly know what to say in response to the generous words which have been spoken from the board of directors. I do not feel that I deserve them.

I have always tried to do my duty; sometimes I have failed, but this I can say: That through all these years the interests of this institution have been in my heart of hearts.

I came as a boy to Washington with a plan in my mind, formed before I came, that in some way I might be able to promote the foundation of an institution for the higher education of the deaf. The assistance of the board and kind encouragement of friends have made me able to see my boyhood dreams fully realized. I feel now I can cease my efforts, as I am sure that this institution, which has had the hearty support of Congress, will continue to have it as long as there are deaf young people who are capable and deserve to have given to them the possibility of higher education. That I will still do my best to promote the welfare of the deaf goes without saying. Yet I shall be glad to have a few years free from the heavy burdens which have been mine so long. To the members of the board I return my most grateful appreciation of what they have said and what they have done for this institution.

REPORT OF THE FREEDMEN'S HOSPITAL.

ROSTER OF OFFICERS.

STAFF.

W. A. Warfield, M. D., *Surgeon in Chief.*
S. L. Carson, M. D., *Assistant Surgeon.*
C. A. Brooks, M. D., *Assistant Physician.*
Walter Van Swearingen, M. D., *Pathologist.*
Geo. W. Davis, M. D., *Anæsthetist.*

NURSES.

Laura R. MacHale, superintendent; Julia A. Duffy, assistant superintendent; Martha E. Cabaniss, night supervisor; Cornelia K. Briggs, head nurse; Marion V. Lucas, head nurse.

INTERNES.

M. O. Bousfield, M. D.
Wm. M. Henry, M. D.
G. W. S. Ish, M. D.
C. E. Davis, M. D.
Wm. M. Harper, M. D.
J. E. H. Taylor, M. D.
R. A. Johnston, M. D.
H. M. Norwood, M. D.

Wm. E. Davis, *B. Sc.*, *Pharmacist.*
Len Barnhill, *Assistant Pharmacist.*

CLERK AND ASSISTANTS.

H. H. Cardozo, Arsine E. Jones (stenographer), F. L. Tewell.

ADVISORY VISITING STAFF.

Edward A. Balloch, M. D.
Edward D. Williston, M. D.
John R. Francis, M. D.
Wm. F. Sowers, M. D.
Wm. F. Robins, M. D.
Jas. J. Richardson, M. D.
J. B. Nichols, M. D.

VISITING STAFF.

MEDICAL.

Harry P. Parker, M. D.
Caryl Burbank, M. D.
Thomas Martin, M. D.
Robert W. Brown, M. D.
J. B. Nichols, M. D.
C. H. Reede, M. D.

SURGICAL.

E. A. Balloch, M. D.
Wm. F. Sowers, M. D.
Edwin M. Hasbrouck, M. D.
Wm. A. Jack, M. D.
H. H. Kerr, M. D.

GYNECOLOGICAL.

W. A. Warfield, M. D.
A. M. Curtis, M. D.
Wm. C. McNeill, M. D.
Howard Hume, M. D.

OBSTETRICS.

Jno. N. Perry, M. D.
Edward D. Williston, M. D.
Edward E. Morse, M. D.
John R. Francis, M. D.
H. M. Lawson, M. D.

PEDIATRICS.

Noble P. Barnes, M. D.
Wm. J. French, M. D.
John W. Mitchell, M. D.

OPHTHALMOLOGY.

Robert S. Lamb, M. D. Assistants: A. R. Collins, M. D.; Martha M. B. Lyon, M. D.

OTOLOGY AND RHINOLOGY.

Jas. J. Richardson, M. D. Assistants: Reginald R. Walker, M. D.; Hamilton Martin, M. D.

GENITO-URINARY.

H. Atwood Fowler, M. D. Assistant: Milton A. Francis, M. D.

NERVOUS AND MENTAL DISEASES.

Wm. L. Robins, M. D. Assistant: Joseph C. Tappan, M. D.

ORTHOPEDICS.

Wm. G. Erving, M. D. Assistant: Karl C. Corley, M. D.

DERMATOLOGY.

H. H. Hazen, M. D.

OUTPATIENT DEPARTMENT.

MEDICAL.

E. H. Reede, M. D.
E. B. Jones, M. D.
R. A. Logan, M. D.
C. A. Tignor, M. D.
J. Hayden Johnson, M. D.
Neil D. Graham, M. D.
Wm. J. Howard, M. D.
C. N. Chipman, M. D.
S. S. Thompson, M. D.

MINOR SURGERY.

Wm. A. Jack, M. D. Assistants: S. L. Carson, M. D.; C. W. Childs, M. D.

EYE.

Robert S Lamb, M. D. Assistants: M. B. Lyon, M. D.; J. C. Dowling, M. D.; Albert R. Collins, M. D.; E. Sohon, M. D.

EAR, NOSE, AND THROAT.

Jas. J. Richardson, M. D. Assistants: Reginald R. Walker, M. D.; Hamilton Martin, M. D.

NERVOUS AND MENTAL DISEASES.

Wm. L. Robins, M. D. Assistant: Joseph C. Tappan, M. D.

GYNECOLOGY.

Wm. C. McNeill, M. D. Assistants: Chas. H. Marshall, M. D.; Mary L. Brown, M. D.

TUBERCULAR.

H. H. Hazen, M. D.
Frank F. Davis, M. D.

GENITO-URINARY.

H. A. Fowler, M. D. Assistants: Jno. B. Critchfield, M. D.; Milton A. Francis, M. D.

ORTHOPEDIC.

Wm. G. Erving, M. D. Assistant: Karl C. Corley, M. D.

PEDIATRICS.

Noble P. Barnes, M. D. Assistants: W. F. R. Phillips, M. D.; Frank F. Davis, M. D.; Wm. Hart, M. D.; C. B. Conklin, M. D.; J. Francis Johnson, M. D.; Louise Taylor Jones, M. D.

DERMATOLOGY.

G. G. Morris, M. D.
W. K. Scott, M. D.

REPORT OF THE FREEDMEN'S HOSPITAL.

INTRODUCTION.

WASHINGTON, D. C., *August 10, 1910.*

SIR: I have the honor to submit the annual report of the Freedmen's Hospital for the fiscal year ended June 30, 1910.

The year just closed has been one of the most active in the history of the institution, exceeding the previous year in every department, and the results attained have been very gratifying. This advance is shown, not merely by the statistics herewith presented, but also in the efficiency with which it was accomplished.

At the close of the preceding year there remained in the hospital 129 patients, of which number 87 were residents of the District of Columbia and 42 nonresidents. During the year 2,492 were admitted and 248 births occurred, making a total of 2,869 indoor patients under care, as against 2,721 the previous year. Of those admitted, 1,931 were received from the District of Columbia and 561 from the States.

STATISTICAL.

A total of 2,715 were discharged as follows: Recovered, 1,128; improved, 1,109; unimproved, 236; not treated, 8; died, 237; leaving 154 in the hospital July 1, 1910.

The mortality for the year was 8.2 per cent of those under care, of which 5.5 per cent were medical and 2.7 per cent were surgical. Of the deaths, 56 were beyond medical and surgical aid when received and died within forty-eight hours. Deducting these cases and 17 premature births, the percentage of deaths would be 5.7 of those receiving treatment.

The surgical work has been especially heavy, 1,482 operations having been performed, of which number 645 were of a major nature. One of the most pleasant features of this work has been the administering of the anæsthetics by a professional anæsthetist. This is regarded as one of the greatest advances in the service during the year.

OUTDOOR DEPARTMENT.

In the outdoor department, 3,726 were treated, or 368 more than the preceding year, as follows:

Medical, 1,388; surgical, 493; nervous, 145; eye, 386; ear, nose, and throat, 393; pediatrics, 70; gynecology, 319; dermatology, 293; genito-urinary, 239, and tubercular, 46. The pediatrics and tubercular services were not established until the latter part of the year.

PATHOLOGICAL DEPARTMENT.

The work in the pathological department began with the appointment of the pathologist and covers eleven months of the year. This service has been invaluable to the hospital in the investigation of diseases in many different cases. The following figures state concisely the work accomplished in this department, but necessarily convey little idea of the amount of labor involved to those unacquainted with laboratory work:

White-blood counts	223	Urinalysis	1,987
Red-blood counts	53	Post mortems	42
Hæmaglobin estimates	80	Examination of surgical specimens	57
Widal reactions	101	Examination of sputum	152
Blood cultures	13	Museum specimens	46
Malarial examinations	8	X-ray photographs	225
Total	478	Total	2,509

Sections cut, stained, and mounted, 550, and numerous miscellaneous examinations and cultures.

Ninety-five applicants were refused admission to the hospital; 59 were due to a lack of available beds and 36 were improper cases for treatment in this institution.

The total days' maintenance furnished was 59,415, as against 58,119 last year.

The following tables show in classified detail the medical and surgical cases:

Medical and surgical diseases.

Disease.	Remaining July 1, 1909.	Admitted.					Discharged.						Remaining July 1, 1910.
		White.		Colored.									
		Male.	Female.	Male.	Female.	Total.	Recovered.	Improved.	Unimproved.	Not treated.	Died.	Total.	
Abscesses, ulcers, and infections.													
Abscess:													
Abdominal wall					1	1	1					1	
Alveola				1	2	3	1	2				3	
Axillary				3		3	1	2				3	
Breast					1	1		1				1	
Ear					1	1		1				1	
Epidural				1	2	3	1	1			1	3	
Face					2	2	2					2	
Heel				1		1	1					1	
Ischio-rectal	1			4	5	10	2	5	1			8	2
Jaw				1	1	2		2				2	
Knee				1		1		1				1	
Labial					5	5	1	4				5	
Leg				2	1	3	1	2				3	
Lung					1	1					1	1	
Neck				4	1	5		5				5	
Peritonsillar				3	2	5	3	2				5	
Periurethral				6		6	4	2				6	
Prostatic				2		2		2				2	
Psoas				3	1	4		3			1	4	
Pyonidial					1	1	1					1	
Retropharyngeal					1	1	1					1	
Scalp					1	1		1				1	
Testicle				4		4		4				4	
Infections:													
Abdominal wall				1	2	3		2	1			3	
Arm				1	2	3		2			1	3	
Breast	1					1	1					1	

Medical and surgical diseases—Continued.

Disease.	Remaining July 1, 1909.	Admitted.					Discharged.						
		White.		Colored.		Total.	Recovered.	Improved.	Unimproved.	Not treated.	Died.	Total.	Remaining July 1, 1910.
		Male.	Female.	Male.	Female.								
Abscesses, ulcers, and infections—Continued.													
Infections—Continued.													
Cervical region				1		1		1				1	
Foot				6	1	7	3	4				7	
Hand		1		5	4	10	3	6				9	1
Cheek				1		1		1				1	
Leg	1	1		2		4	2	1			1	4	
Prepatellar bursa				1	1	2	1	1				2	
Shoulder					1	1		1				1	
Ulcer:													
Duodenal				1		1					1	1	
Gastric					3	3							3
Rectal					1	1			1			1	
Syphilitic (leg)				1	1	2	1	1				2	
Traumatic				2		2		2				2	
Varicose (leg)	5			8	9	22	3	15	1		1	20	2
Bones and joints.													
Ankylosis	1	1			2	4		2	1			3	1
Arthritis:													
Gonorrheal				18	4	22	1	18	1			20	2
Tubercular—													
Ankle				1		1							1
Elbow					1	1	1					1	
Hip joint	2			4	4	10		9			1	10	
Knee	2			2	2	6		4	1			5	1
Spine				4	3	7		4				4	3
Wrist				1	1	2		2				2	
Charcot's joint				1		1		1				1	
Chronic periostitis, tibia					1	1		1				1	
Deformities:													
Club foot				2	2	4		2	2			4	
Hypertrophic arthritis, hip				1		1		1				1	
Kiphosis	1				1	2	1		1			2	
Pes planus				1	1	2		2				2	
Scoliosis					3	3		3				3	
Dislocations:													
Ankle					2	2	1	1				2	
Cocyx					1	1		1				1	
Hip				2		2		2				2	
Shoulder				3		3	1	2				3	
Epiphyseal separation, humerus					1	1	1					1	
Fallen arches				5	1	6		6				6	
Floating bodies, knee				1	1	2		1	1			2	
Fracture:													
Clavicle				1		1		1				1	
Femur	5			8	2	15	8	6	1			15	
Humerus	1			4	1	6	2	3				5	1
Inferior maxilla				2		2		1				1	1
Metatarsal bones				1		1	1					1	
Nasal bones				1		1	1					1	
Patella				1		1		1				1	
Pott's	1			1		2	1	1					
Radius and ulna		1		2		3		3				3	
Ribs				3	1	4		4				4	
Skull		1		4		5	1				3	4	1
Tibia				6		6	3	3				6	
Tibia and fibula	1	2		3	1	7	4	3				7	
Ulna				3	1	4		4				4	
Vertebra				1		1					1	1	
Lacerated ligaments, knee				2		2		1				1	1
Lacerated ligaments, wrist				1		1		1				1	
Osteomyelitis:													
Femur				1	1	2	1	1				2	
Fibula				1		1		1				1	
Finger					1	1		1				1	
Humerus				1		1		1				1	
Inferior maxilla				1	1	2		2				2	
Os calcis				1		1							1
Tibia	3			6	6	15	1	13				14	1
Vertebra				1		1		1				1	

Medical and surgical diseases—Continued.

Disease.	Remaining July 1, 1909.	Admitted.					Discharged.						Remaining July 1, 1910.
		White.		Colored.		Total.	Recovered.	Improved.	Unimproved.	Not treated.	Died.	Total.	
		Male.	Female.	Male.	Female.								
Bones and joints—Continued.													
Sprain:													
Ankle				2	2	4		4				4	
Hip		1		1		2	1	1				2	
Knee				2		2	1	1				2	
Sacro-iliac		1		4		5	2	3				5	
Shoulder				2		2		2				2	
Spondilitis		1				1		1				1	
Synovitis:													
Ankle				1		1							1
Hand					1	1							1
Knee				1	2	3		3				3	
Wire in femur				1		1	1					1	
Constitutional diseases.													
Anæmia				1	1	2		2				2	
Arthritis deformans				3		3		3				3	
Cretinism					1	1		1				1	
Debility, senile	1	2		3	3	9		2	2		3	7	2
Diabetes mellitus				1	3	4		2			2	4	
Hemophilia				1		1					1	1	
Marasmus	1			10	4	15	2	1	1		11	15	
Rachitis					3	3		2				2	1
Simple continued fever				1		1	1					1	
Lymphatic system and peritoneum.													
Adenitis:													
Cervical	2			9	18	29	11	16				27	2
Inguinal	2			35	5	42	7	28				35	7
Peritonitis:													
Septic				2	6	8		1	1		6	8	
Tubercular	1			1	7	9	1	2			4	7	2
Circulatory system.													
Aneurysm:													
Aortic (arch)				1		1			1			1	
External iliac				1		1	1					1	
Popliteal				1		1		1				1	
Epistaxis				3		3	2	1				3	
Gangrene:													
Foot				2	2	4	1	2			1	4	
Index finger				1		1		1				1	
Hemorrhage:													
Cord				1		1					1	1	
Post operative				2		2	1	1				2	
Hemorrhoids	1			9	3	13	8	4	1			13	
Myocarditis					2	2					2	2	
Pericarditis					2	2					1	1	1
Phlebitis				1	1	2		1				1	1
Sclerosis		2		12	2	16		14	1			15	1
Thrombosis, femoral				1		1	1					1	
Valvular lesions:													
Aortic—													
Insufficiency				11		11		8			3	11	
Stenosis				1	1	2		1			1	2	
Mitral insufficiency	4	4		18	14	40		21	3		10	34	6
Tricuspid insufficiency					2	2					2	2	
Varicose veins:													
Legs		1		6	7	14	5	8	1		14		
Digestive system.													
Appendicitis:													
Acute				3	7	10	7	2			1	10	
Chronic				2	1	3	2	1				3	
Fulminating	1			5	3	9	5				3	8	1
Calculus, parotid					1	1	1					1	
Cholera infantum					1	1					1	1	

Medical and surgical diseases—Continued.

Disease.	Remaining July 1, 1909.	Admitted.					Discharged.						Remaining July 1, 1910.
		White.		Colored.		Total.	Recovered.	Improved.	Unimproved.	Not treated.	Died.	Total.	
		Male.	Female.	Male.	Female.								
Digestive system—Continued.													
Cholecystitis				1	6	7	2	4	1			7	
Cholangitis					1	1	1					1	
Constipation		2		7	15	24	11	12				23	1
Cholelithiasis				1	3	4	2	1				3	1
Cirrhosis liver:													
Atrophic				1	1	2			1		1	2	
Hypertrophic				1		1			1			1	
Diarrhea		1				1		1				1	
Dilated common duct				1		1		1				1	
Enteritis	2	3		16	13	34	11	14	2		5	32	2
Fissure in ano				1	2	3	1	2				3	
Fistulo in ano				6	4	10	2	6				8	2
Gastritis:													
Acute	1	1		19	19	40	20	17			1	38	2
Chronic	2	1		6	6	15	4	8	3			15	
Hernia:													
Inguinal—													
Direct				1		1	1					1	
Indirect	1	1		30	8	40	24	8	3	1	2	38	2
Ventral				2	7	9	4	2			2	8	1
Hepatitis, acute				1		1		1				1	
Intestinal obstruction				3	3	6	2	1	1		2	6	
Intestinal atony		1				1		1				1	
Post operative adhesions				3	1	4	1		1			2	2
Pyloric stenosis				2		2			1			1	1
Stomatitis				1	1	2		2				2	
Stricture:													
Esophagus				2		2		1			1	2	
Rectum					3	3		3				3	
Yellow atrophy liver					1	1					1	1	
Eye, ear, nose, and throat.													
Cataract:													
Senile	1			1	2	4		4				4	
Traumatic				1		1							1
Chalazion				1		1		1				1	
Choroiditis				1		1		1				1	
Conjunctivitis:													
Catarrhal				3		3	1	2				3	
Phlyctenular					1	1		1				1	
Corneal ulcer				1		1							1
Fistula, lachrymal sac				1		1		1				1	
Iritis				2	2	4		3	1			4	
Glaucoma				1	3	4		3				3	1
Gonorrheal ophthalmia					1	1		1				1	
Keratoiritis				1	2	3		3				3	
Keratitis				3	2	5	1	3				4	1
Lacerated cornea				1		1	1					1	
Ophthalmia neonatorum					1	1		1				1	
Retinal detachment	1					1		1				1	
Retinitis, atrophic	2			1	1	4		3	1			4	
Ear:													
Mastoiditis				1	2	3	1	2				3	
Otitis media					3	3	2	1				3	
Nose:													
Coryza				2	3	5	3	2				5	
Enlarged turbinates					1	1		1				1	
Rhinitis—													
Atrophic				1		1		1				1	
Hypertrophic					1	1		1				1	
Throat:													
Adenoids				2		2	2					2	
Pharyngitis—													
Acute					2	2	1					1	1
Chronic				2		2		2				2	
Tonsilitis—													
Acute		1		2	3	6	4	2				6	
Chronic				1	2	3	1	2				3	
Hypertrophic				2	9	11		9	2			11	

Medical and surgical diseases—Continued.

Disease.	Remaining July 1, 1909.	Admitted.					Discharged.						Remaining July 1, 1910.
		White.		Colored.									
		Male.	Female.	Male.	Female.	Total.	Recovered.	Improved.	Unimproved.	Not treated.	Died.	Total.	
Poisoning.													
Autointoxication					4	4		1				1	3
Alcoholism:													
Acute	1	14	2	24	10	51	20	28	2			50	1
Chronic		2		1	1	4		4				4	
Carbon monoxide				1		1		1				1	
Chloroform			1		1	2	1	1				2	
Ptomaine				1	1	2	2					2	
Strychnine				1		1	1					1	
Sunstroke		1		6	1	8	1	6			1	8	
Genito-urinary system.													
Chancroids	3	1		14	5	23	6	15			1	22	1
Chancroid and inguinal adenitis				3		3	2	1				3	
Chancroid and stricture				1		1		1				1	
Cystitis		1		2	1	4		4				4	
Enuresis				1		1		1				1	
Epididymitis		3		17		20	9	10				19	1
Fistula:													
Urethral				1		1		1				1	
Urethro-rectal				1		1							1
Gangrene scrotum				1		1					1	1	
Gonorrhea				9	5	14	2	9	2			13	1
Hematocele				1		1	1					1	
Hydrocele				6		6	2	4				6	
Hydrocele of cord				1		1		1				1	
Hydrocele and spermatocele				1		1		1				1	
Hypospadias				1		1	1					1	
Nephritis:													
Acute parenchymatous	2			12	6	20	7	5			8	20	
Chronic interstitial	1	1		17	21	40	1	17	3		16	37	3
Chronic parenchymatous					3	3			1		2	3	
Nephrolithiasis				1		1	1					1	
Pyelonephritis				4	1	5		2	1		1	4	1
Tubercular				3	1	4			2		1	3	1
Orchitis:													
Gangrenous				1		1		1				1	
Gonorrheal				4		4	1	3				4	
Tubercular				2		2	1					1	1
Paraphymosis				2		2	2					2	
Phimosis				13		13	5	6	1			12	1
Prostatitis, hypertrophic	1	1		8		10		3	1		6	10	
Spermatocele				1		1							1
Stricture		3		14		17	3	13			1	17	
Urethral caruncle					2	2	2					2	
Varicocele				4		4	3	1				4	
Infectious diseases.													
Broncho-pneumonia				1	3	4					4	4	
Cerebro-spinal meningitis				1	1	2					2	2	
Diphtheria				1	1	2			2			2	
Dysentery				1		1		1				1	
Erysipelas				4	1	5	2	1			2	5	
Febricula				4		4	4					4	
Influenza				4	4	8	3	4	1			8	
Malaria	1	1		11	4	17	11	6				17	
Parotitis				1		1	1					1	
Pneumonia	1	1		55	26	83	28	19	3		30	80	3
Rheumatism:													
Acute articular	5	1	1	20	21	48	14	29	1		1	45	3
Chronic articular	1	1		7	9	18	5	12	1			18	
Muscular		1		4		5	1	4				5	
Scarlet fever					1	1					1	1	
Smallpox					1	1			1			1	
Syphilis:													
Primary	1			19	10	30	1	26	1			28	2
Secondary				4	4	8		8				8	
Tertiary	3	1		9	8	21		16	3		2	21	
Congenital				2	4	6		4	1		1	6	
Tetanus				3	1	4					4	4	

Medical and surgical diseases—Continued.

Disease.	Remaining July 1, 1909.	Admitted.					Discharged.						Remaining July 1, 1910.
		White.		Colored.		Total.	Recovered.	Improved.	Unimproved.	Not treated.	Died.	Total.	
		Male.	Female.	Male.	Female.								
Infectious diseases—Continued.													
Tuberculosis:													
Miliary				5	6	11			1		10	11	
Pulmonary	1	2		19	18	40		19	21			40	
Typhoid fever	1			26	17	44	32	5			4	41	3
Whooping cough				1		1		1				1	
Injuries.													
Burn:													
Arm	1			4	1	6	1	5				6	
Back					1	1	1					1	
Face			1		1	2		1			1	2	
Hand				1		1		1				1	
Knee				1		1	1					1	
Leg					1	1		1				1	
Neck				1	2	3		3				3	
Shoulder				1		1		1				1	
Thigh				1		1			1			1	
Thorax		1	1		1	3	1				2	3	
Insect sting of lip				1		1	1					1	
Wounds:													
Contused—													
Abdomen				1		1		1				1	
Eye				2		2		2				2	
Hand				2		2		2				2	
Knee				1		1	1					1	
Neck and thorax		2		4		6	3	2	1			6	
Scalp				5	1	6		6				6	
Shoulder				2		2		2				2	
Thigh		2		8	2	12	2	10				12	
Gunshot—													
Abdomen				1		1					1	1	
Eye				2		2		2				2	
Thigh				2	1	3		2				2	1
Incised—													
Arm				3		3		3				3	
Foot				2		2							2
Forehead				4		4	1	3				4	
Neck		1		1	1	3		3				3	
Side				1		1		1				1	
Lacerated—													
Face				5	2	7	1	6				7	
Leg				2		2		2				2	
Thumb	1					1		1				1	
Scalp		1		3	1	5	1	4				5	
Nervous system.													
Cerebral hyperemia				1		1			1			1	
Cerebral thrombosis	1			4		5		5				5	
Cerebral hemorrhage	2	1		5	4	12		3	2		5	10	2
Cerebral softening					4	4			3		1	4	
Concussion, brain					1	1	1					1	
Dementia precox					1	1		1				1	
Epilepsy		5		18	5	28		22	5		1	28	
Epileptic mania				1		1			1			1	
Hemiplegia				1	1	2		2				2	
Hydrocephalus					1	1			1			1	
Hypochrondriasis					1	1		1				1	
Hysteria	1		1	6	15	23	5	15	3			23	
Insanity					3	3			3			3	
Lateral sclerosis				1		1							1
Neuralgia				1		1		1				1	
Neurasthenia		1		7	11	19	5	13	1			19	
Neuritis				7	6	13	3	8				11	2
Paralysis agitans	1					1		1				1	
Paralysis	2			1	1	4		2				2	2
Paralysis, infantile				1	1	2		1	1			2	
Subdural hemorrhage				1		1					1	1	
Syncope				4		4		4				4	
Tabes dorsalis		1		2	1	4		4				4	
Tic douloureux					1	1		1				1	
Traumatic shock		1		1	1	3	1	2				3	
Tubercular meningitis				1	1	2					2	2	

Medical and surgical diseases—Continued.

Disease.	Remaining July 1, 1909.	Admitted.					Discharged.						Remaining July 1, 1910.
		White.		Colored.		Total.	Recovered.	Improved.	Unimproved.	Not treated.	Died.	Total.	
		Male.	Female.	Male.	Female.								
Respiratory system.													
Asthma (bronchial)	....	3	....	3	3	9	1	7	....	....	1	9	....
Bronchitis:													
Acute	1	1	1	5	4	12	3	7	1	....	1	12	....
Chronic	....	2	....	1	1	4	1	3	....	....	....	4	....
Empyema	....	....	....	1	....	1	....	....	....	....	....	....	1
Hematothorax	....	....	....	1	....	1	1	....	....	....	....	1	....
Laryngitis	....	....	....	....	1	1	....	1	....	....	....	1	....
Perichondritis	....	....	....	1	....	1	....	1	....	....	....	1	....
Pleurisy, acute	1	1	....	12	2	16	3	12	1	....	....	16	....
Skin.													
Cicatrix of burn	....	....	....	....	2	2	....	2	....	....	....	2	....
Dermatitis venenata	2	....	....	....	1	3	1	2	....	....	....	3	....
Eczema	....	1	....	....	....	1	....	1	....	....	....	1	....
Frost bite of feet	....	....	....	2	....	2	1	1	....	....	....	2	....
Keloid	....	....	....	1	1	2	1	....	1	....	....	2	....
Lupus vulgaris	....	....	....	....	2	2	....	2	....	....	....	2	....
Psoriasis	....	....	....	....	1	1	....	....	....	....	....	....	1
Scabies	....	....	1	1	1	3	....	3	....	....	....	....	....
Tinea tonsurans	....	....	....	3	....	3	1	....	1	....	....	2	1
Tumors and hypertrophies.													
Carcinoma:													
Breast	1	....	....	....	9	10	2	6	....	....	1	9	1
Cæcum	1	....	....	....	....	1	1	....	....	....	....	1	....
Colon	....	....	....	....	1	1	1	....	....	....	....	1	....
Ilium	....	....	....	....	1	1	....	....	1	....	....	1	....
Liver	....	....	....	....	1	1	....	....	....	....	1	1	....
Superior maxilla	....	....	....	3	....	3	....	1	1	....	1	3	....
Pancreas	....	....	....	....	1	1	....	....	....	....	1	1	....
Penis	....	1	....	....	....	1	....	1	....	....	....	1	....
Prostate	....	....	....	1	....	1	....	....	....	....	1	1	....
Sigmoid and rectum	....	....	....	1	....	1	....	....	....	....	1	1	....
Stomach	....	....	....	4	1	5	....	3	1	....	1	5	....
Condylomata	....	1	....	1	5	7	1	4	1	....	....	6	1
Cyst of thyroid	....	....	....	....	1	1	1	....	....	....	....	1	....
Dentigerous cyst	....	....	....	1	....	1	1	....	....	....	....	1	....
Epulis	....	....	....	....	2	2	1	1	....	....	....	2	....
Fibroma:													
Back	....	....	....	....	1	1	1	....	....	....	....	1	....
Breast	....	....	....	....	1	1	1	....	....	....	....	1	....
Cheek	....	....	....	....	1	1	1	....	....	....	....	1	....
Stomach wall	....	....	....	....	1	1	1	....	....	....	....	1	....
Hypertrophic labia majora	....	....	....	....	1	1	....	1	....	....	....	1	....
Keloid of ear	....	....	....	....	1	1	....	1	....	....	....	1	....
Lipoma:													
Back	....	....	....	1	1	2	2	....	....	....	....	2	....
Chest wall	....	....	....	1	1	2	....	2	....	....	....	2	....
Mammary gland	....	....	....	....	1	1	1	....	....	....	....	1	....
Mixed tumor parotid	....	....	....	1	....	1	....	1	....	....	....	1	....
Sarcoma:													
Foot	....	....	....	....	1	1	1	....	....	....	....	1	....
Femur	....	....	....	....	1	1	1	....	....	....	....	1	....
Generalized	....	....	....	....	2	2	....	2	....	....	....	2	....
Inguinal region	1	....	....	....	....	1	....	....	1	....	....	1	....
Liver	....	....	....	....	1	1	....	....	....	....	1	1	....
Superior maxilla	....	....	....	1	....	1	....	1	....	....	....	1	....
Ovary	1	....	....	....	....	1	....	1	....	....	....	1	....
Lympho-sarcoma	....	....	....	1	....	1	....	....	....	....	1	1	....
Parotid	....	....	....	....	1	1	....	....	1	....	....	1	....
Gynecology and obstetrics.													
Abortion	4	....	....	....	50	54	20	23	3	....	5	51	3
Adherent prepuce	....	....	....	....	1	1	....	1	....	....	....	1	....
Anteflexion and endometritis	....	....	....	....	1	1	....	1	....	....	....	1	....
Carcinoma cervix	1	....	....	....	10	11	....	4	6	....	....	10	1
Cystocele	....	....	....	....	1	1	....	1	....	....	....	1	....
Dermoid cyst	....	....	....	....	2	2	1	....	....	....	....	1	1
Ectopic gestation	2	....	....	....	9	11	5	3	1	....	1	10	1

Medical and surgical diseases—Continued

Disease.	Remaining July 1, 1909.	Admitted.					Discharged.						Remaining July 1, 1910.
		White.		Colored.		Total.	Recovered.	Improved.	Unimproved.	Not treated.	Died.	Total.	
		Male.	Female.	Male.	Female.								
Gynecology and obstetrics—Cont'd.													
Endocervicitis					2	2		2				2	
Endometritis					21	21	2	13	4			19	2
Fibromata uteri	1				51	52	31	10	7	1	2	51	1
Fibroid and pyosalpinx					6	6	2	2	1			5	1
Fibroid, salpingitis, and cystic ovaries					9	9	7	2				9	
Fibroid, submucous	2				4	6	4	1	1			6	
Fibroid, interligamentous					1	1		1				1	
Fibro-sarcoma uterus					2	2			1		1	2	
Fistula:													
Recto-vaginal					1	1			1			1	
Vesico-vaginal					1	1	1					1	
Lacerated cervix					1	1		1				1	
Lacerated perineum					10	10	6	2				8	2
Menopause	1				1	2		2				2	
Menorrhagia					2	2		2				2	
Oophoritis, cystic	4				25	29	18	8	1			27	2
Oophoritis and appendicitis					1	1		1				1	
Ovarian cyst					1	1	1					1	
Procidentia	1				4	5	1	2	1			4	1
Post operative adhesions					4	4	1	1	2			4	
Pyosalpinx					73	73	29	17	16		1	63	10
Pyosalpinx and appendicitis					1	1					1	1	
Pyosalpinx and carcinoma cervix					1	1					1	1	
Rectocele					1	1	1					1	
Retroflexion uterus					1	1		1				1	
Retrovertion uterus	1				3	4	1	2	1			4	
Salpingitis					21	21	2	13	6			21	
Salpingitis and cystic ovaries					21	21	10	11				21	
Salpingitis and appendicitis					1	1		1				1	
Uterine hemorrhage					1	1			1			1	
Vaginitis					1	1		1				1	
Obstetrics.													
Births	5		2	132	110	249	242					242	7
Pregnancy	17		4		332	353	275		60		5	340	13
Hyperemesis gravidarum	2					2	1				1	2	
Puerperal eclampsia					1	1					1	1	
Puerperal sepicæmia					2	2	1				1	2	
Puerperium	1		1		5	7	4			3		7	
Premature births				6	7	13					13	13	
Total	129	91	16	1,157	1,476	2,869	1,128	1,109	236	5	237	2,715	154
Still births				20	15	35					35	35	
Grand total	129	91	16	1,177	1,491	2,904	1,128	1,109	236	5	272	2,750	154

Operations and results.

Operation.	Diagnosis.	White.		Colored.		Total.	ecovered.	Improved.	Unimproved.	Died.
		Male.	Female.	Male.	Female.					
Adenoidectomy	Adenoids			19	27	46	46			
Amputation	Burn of fingers			2		2	1	1		
	Carcinoma penis	1				1		1		
	Crushed toes			1		1		1		
	Gangrene of finger			1		1	1			
	Gangrene of foot			4	1	5	3	1		1
	Gangrene hand			1		1	1			
	Gunshot wound, arm			1		1	1			
	Hammer toe	1				1	1			
	Hypertrophy cervix uteri				1	1	1			

Operations and results—Continued.

Operation.	Diagnosis.	White.		Colored.		Total.	Recovered.	Improved.	Unimproved.	Died.
		Male.	Female.	Male.	Female.					
Amputation	Infected breast				1	1	1			
	Osteomyelitis tibia			1	1	2		2		
	Sarcoma of foot				1	1	1			
	Sarcoma of hand				1	1		1		
Aspiration	Abscess of lung				1	1				1
	Synovitis knee			1		1		1		
Celiotomy:										
Appendectomy	Acute appendicitis				1	1	1			
	Gangrenous appendicitis			5	5	10	9			1
	Chronic appendicitis			2	5	7	6	1		
Cholecystenterostomy	Dilated common duct			1		1		1		
Cholecystostomy	Cholecystitis				6	6	2	3		1
	Cholelithiasis			1	2	3	1	2		
Exploratory	Adeno-carcinoma rectum			1		1				1
	Adeno-papilloma ovary				1	1			1	
	Carcinoma liver				2	2				2
	Carcinoma stomach				1	1			1	
	Carcinoma uterus				1	1				1
	Dilated stomach			1		1			1	
	Induration, broad ligament				1	1	1			
	Pregnancy				2	2	2			
	Pregnancy and pyosalpinx				1	1				1
	Suspected perforation (typhoid)				1	1				1
	Tubercular peritonitis			4	2	6		4		2
Gastro-enterostomy	Carcinoma of stomach			1		1		1		
Gastrostomy	Stricture esophagus			1		1				1
Hysterectomy	Fibroid of uterus				1	1	1			
Hystero-salpingo-oophorectomy.	Bilateral pyosalpinx and cystic ovaries.				30	30	22	8		
	Ectopic pregnancy				6	6	3	2		1
	Fibroid of uterus				37	37	31	5		1
	Fibroid, pyosalpinx and cystic ovaries.				13	13	10	3		
	Bilateral dermoid cysts				1	1	1			
	Perforated uterus and peritonitis				1	1				1
	Sarcoma ovary				1	1				1
	Sloughing submucous fibroid				1	1	1			
Hysterectomy (vaginal)	Complete procidentia				1	1	1			
Myomectomy	Superitoneal fibroid				2	2	2			
Oophorectomy	Cystic ovary				3	3	3			
	Ovarian cyst				2	2	2			
Oophorectomy and appendectomy.	Cystic ovary and appendicitis				2	2	1	1		
Porro cæsarian	Pregnancy, contracted pelvis				1	1	1			
Salpingectomy and plastic on ovary.	Salpingitis and cystic ovaries				2	2	1	1		
Salpingo-oophorectomy	Pyosalpinx and cystic ovaries				28	28	19	9		
	Ectopic pregnancy				2	2	2			
	Dermoid cyst				1	1	1			
Salpingo-oophorectomy and appendectomy.	Salpingitis and appendicitis				3	3	2	1		
Salpingo-oophorectomy and plastic.	Bilateral salpingitis and cystic ovaries.				7	7	5	2		
Ventro-suspension	Retroverted uterus				1	1		1		
Cauterization	Carcinoma cervix				3	3		2	1	
	Chancroid penis			2		2		1		1
	Condylomata				2	2		2		
	Hypertrophy labia majora				1	1	1			
	Verruca of hand				1	1		1		
Circumcision	Phimosis			29		29	22	7		
Circumcision and extirpation	Phimosis and inguinal adenitis			3		3	2	1		
Curettage	Carcinoma cervix				1	1		1		
	Chancroids			1		1		1		
	Endometritis				8	8	2	6		
	Multiple sinuses knee			1		1		1		
	Osteomyelitis tibia			2	1	3		3		
	Osteomyelitis radius				1	1		1		
	Retained placental tissue				32	32	20	8		4
	Sloughing sarcoma jaw			1		1				1
	Suppurating cervical adenitis			1	1	2		2		
	Suppurating inguinal adenitis			2		2		2		
	Toxemia of pregnancy				1	1	1			
Cystotomy	Vesical calculus			1		1		1		
Dilation	Fissure in ano				1	1		1		
	Syphilitic stricture rectum				1	1		1		
	Urethral stricture			3		3	1	2		
Disarticulation	Sarcoma of femur				1	1	1			

Operations and results—Continued.

Operation.	Diagnosis.	White.		Colored.		Total.	Recovered.	Improved.
		Male.	Female.	Male.	Female.			
Enucleation	Glaucoma	....	....	....	1	1	1	....
	Gunshot wound eye	....	....	1	....	1	....	1
	Fibroid of stomach wall	....	....	....	1	1	1	....
	Interligamentous fibroid	....	....	....	1	1	....	1
	Irido-cyclitis	....	....	1	....	1	....	1
	Mixed tumor parotid	....	....	1	....	1	....	1
	Lipoma chest wall	....	....	....	2	2	2	....
	Lipoma back	....	....	2	....	2	2	....
	Panophthalmitis	....	....	1	....	1	1	....
Iridectomy	Prolapsed iris	....	....	1	....	1	1	....
	Sympathetic ophthalmia	....	....	1	....	1	....	1
Excision	Abscess epididymis	....	....	1	....	1	....	1
	Adenoids	....	....	1	1	2	2	....
	Calculus of parotid	....	....	....	1	1	1	....
	Chancroidal ulcer	....	....	1	....	1	....	1
	Chondroma of finger	....	....	1	....	1	1	....
	Cicatrix following burn	....	....	1	2	3	....	3
	Cyst of thyroid gland	....	....	....	1	1	1	....
	Displaced coccyx	....	....	....	1	1	....	1
	Dentigerous cyst	....	....	1	....	1	1	....
	Epulis	....	....	....	4	4	2	2
	Fibroma of cheek	....	....	....	1	1	1	....
	Ganglion of wrist	....	....	3	2	5	2	3
	Fissure in ano	....	....	1	2	3	1	2
	Fistula in ano	....	....	5	2	7	3	4
	Gangrene toe	....	....	1	....	1	1	....
	Hydrocele	....	....	6	....	6	3	3
	Hemorrhoids	....	....	6	4	10	7	3
	Hematoma knee	....	....	....	1	1	1	....
	Ingrown toe nail	....	....	3	....	3	1	2
	Ischio-rectal abscess	....	....	....	1	1	....	1
	Keloids	....	....	4	1	5	1	4
	Labial abscess	....	....	....	1	1	1	....
	Lipomata	....	....	....	2	2	1	1
	Necrosis, astragulus	....	....	1	....	1	....	1
	Papillomata	....	....	4	1	5	5	....
	Preolecranon bursitis	....	....	3	....	3	3	....
	Pyonidal abscess	....	....	....	1	1	1	....
	Sarcoma, superior maxilla	....	....	1	....	1	....	1
	Sebaceous cyst	....	....	6	....	6	6	....
	Spermatocele	....	....	2	....	2	2	....
	Stricture rectum	....	....	....	1	1	....	1
	Submucous fibroid	....	....	....	2	2	2	....
	Varicocele	....	....	3	....	3	3	....
	Varicose veins, leg	....	....	2	3	5	5	....
	Vesico-vaginal fistula	....	....	....	1	1	1	....
	Urethral caruncle	....	....	....	2	2	2	....
	Venereal warts	....	....	1	....	1	....	1
Extirpation	Carcinoma breast	....	....	....	8	8	3	5
	Cervical adenitis	....	....	12	14	26	6	20
	Congenital hydrocele of cord	....	....	1	....	1	....	1
	Periurethral abscess	....	....	1	....	1	....	1
	Fistula lachrymal sac	....	....	1	....	1	....	1
	Fibroma breast	....	....	....	2	2	2	....
	Inguinal adenitis	....	....	13	....	13	4	9
	Lympho-sarcoma	....	....	1	....	1	....	....
	Papilloma chin	....	....	1	....	1	1	....
	Pelvic abscess sac	....	....	....	2	2	1	....
	Sebaceous cyst	....	....	1	....	1	1	....
Herniotomy	Bilateral inguinal hernia	....	....	6	2	8	6	2
	Direct inguinal hernia	....	....	2	....	2	2	....
	Incarcerated inguinal hernia	....	....	1	1	2	2	....
	Incarcerated umbilical hernia	....	....	....	1	1	....	1
	Post operative hernia	....	....	1	3	4	3	1
	Umbilical hernia	....	....	3	3	6	5	....
	Unilateral inguinal hernia	....	....	16	3	19	17	2
Herniotomy and excision	Bilateral hernia and hydrocele	....	....	1	....	1	1	....
Incision	Cellulitis abdominal wall	....	....	1	1	2	....	1
	Abscess, alveolar	....	1	4	3	8	3	5
	Abscess, axillary	....	....	7	4	11	5	6
	Abscess of back	....	....	2	....	2	....	2
	Abscess, cervical	....	....	12	5	17	....	17
	Abscess, inguinal	....	....	7	4	11	1	10
	Abscess, ischio-rectal	....	....	9	2	11	2	9
	Abscess of jaw	....	....	13	5	18	9	9
	Abscess of knee	....	....	3	....	3	....	3
	Abscess of kidney	....	....	1	....	1	....	1
	Abscess, pelvic	....	....	....	10	10	4	6

Operations and results—Continued.

Operation.	Diagnosis.	White.		Colored.		Total.	Recovered.	Improved.	Unimproved.	Died.
		Male.	Female.	Male.	Female.					
Incision	Abscess, pericranial				1	1		1		
	Abscess, peritonsillar			1	3	4	4			
	Abscess, psoas			4		4		3		1
	Abscess, prostatic			2		2		2		
	Abscess of scrotum			4		4	2	2		
	Abscess of tongue			1		1		1		
	Cellulitis, arm			3	4	7		6		1
	Cellulitis, thigh			11	1	12	1	11		
	Contused wound, scalp			1		1	1			
	Epididymitis	2		4		6	3	3		
	Gunshot wound, thigh			1	1	2		2		
	Infected foot			3	2	5		5		
	Infected hand	9		35	28	72	12	60		
	Infected keloid				1	1	1			
	Infected prepatellar bursa			1	1	2	1	1		
	Phlebitis			1		1		1		
	Ruptured popliteal aneurism			1		1		1		
	Sebaceous cyst			2	1	3	2	1		
	Tongue tie			2		2	2			
Ligation external carotis	Carcinoma tongue			2		2		2		
	Carcinoma frontal sinus			1		1		1		
Ligation external iliac	Aneurism external iliac			1		1	1			
Ligation veins leg	Varicose ulcer			1		1		1		
	Varicose veins			1	3	4	3	1		
Needling	Traumatic cataract				1	1		1		
Nephrectomy	Tuberculosis kidney			2		2	1			1
Nephrotomy	Hemorrhage of kidney			1		1		1		
Orchidectomy	Abscess of testicle			3		3		3		
	Gangrenous orchitis			1		1		1		
	Tuberculosis of testicle			1		1		1		
Osteotomy	Fractured spine and rib			1		1				1
	Fracture tibia and genu valgus			1	1	2	1	1		
	Mastoiditis			1	1	2		2		
	Osteomyelitis of femur			2		2	2			
	Osteomyelitis of fibula and tibia			1		1		1		
	Osteomyelitis of humerus			1		1		1		
	Osteomyelitis of inferior maxilla			1	1	2		2		
	Osteomyelitis of tibia			3	3	6		6		
	Osteomyelitis of tuberculosis sacrum.			1		1		1		
Perineal section	Urethral stricture			13		13	1	11		1
Perineorrhaphy	Lacerated perineum				10	10	6	4		
Plastic	Absence one-third rectum				1	1		1		
	Bilateral cystic ovaries				4	4	2	2		
	Chancroidal ulcerations			1	1	2		2		
	Cystocele and rectocele				2	2	1	1		
	Deformity from burn				1	1		1		
	Destruction glans penis			1		1		1		
	Hypospadias			1		1	1			
Prostatectomy:										
Perineal	Hypertrophied prostate			4		4		2		2
Suprapubic	do			3		3				3
Reduction	Colles's fracture	2		5	1	8		8		
	Dislocated astragulus			1	1	2	2			
	Dislocated finger	7		3	1	11	11			
	Dislocated femur			1	1	2	1	1		
	Dislocated humerus			7	1	8	8			
	Dislocated inferior maxilla			3	1	4	4			
	Fractured femur			1		1	1			
	Fractured finger			3		3		3		
	Fractured humerus	1		2	1	4	2	2		
	Fractured ribs			3	2	5		5		
	Separation, epiphysis humerus				1	1		1		
	Volvulus, intestine				1	1				1
Removal	Bullet in thigh			1		1	1			
	Fish bone in throat			1		1	1			
	Foreign body in foot			3	1	4	4			
	Foreign body in hand			3	2	5	4	1		
	Foreign body in knee			2		2		2		
	Nasal polypi			1	2	3	3			
	Silver wire in femur			1		1	1			
Resection	Carcinoma large intestine				1	1		1		
	Empyema			3		3		3		
	Gonorrheal arthritis			1		1		1		
	Intestinal obstruction			1	1	2	1			1
	Osteomyelitis one-third fibula			1		1	1			

Operations and results—Continued.

Operation.	Diagnosis.	White.		Colored.		Total.	Recovered.	Improved.	Unimproved.	Died.
		Male.	Female.	Male.	Female.					
Resection	Strangulated ventral hernia	....	...	....	1	1	....	....	...	1
	Ununited fracture femur	....	...	3	....	3	2	1	...	...
Shortening mesentery	Intussusception sigmoid	....	...	1	....	1	1	....	...	...
Shortening round ligaments	Retroverted uterus	....	...	....	2	2	2	....	...	...
Skin graft	Burn	....	...	4	2	6	4	2	...	...
Submucous resection	Deflection nasal system	....	...	1	....	1	1	....	...	...
Suturing	Incised wounds	15	...	100	34	149	....	149	...	...
	Fracture of olecranon	....	...	2	....	2	2	....	...	...
	Gunshot wound intestines	....	...	1	....	1	....	....	...	1
	Lacerated wounds	36	2	171	45	254	....	254	...	...
	Ruptured ligaments knee	....	...	2	....	2	1	1	...	...
Tenotomy	Talipes equino varus	....	...	1	....	1	....	1	...	...
Tonsillectomy	Hypertrophied tonsils	....	...	48	40	88	88	....	...	...
	Lingual hypertrophy	....	...	1	1	2	2	....	...	...
Tracheolorrhaphy	Lacerated cervix	....	...	....	1	1	....	1	...	...
Trephining	Depressed fracture skull	....	...	2	....	2	2	....	...	...
	Epidural abscess	....	...	....	1	1	....	1	...	...
	Epilepsy	....	...	1	....	1	....	1	...	...
	Subdural hemorrhage	....	...	1	....	1	....	....	...	1
Turbinectomy	Hypertrophied turbinates	....	...	6	....	6	6	....	...	...
Wiring	Fractured femur	....	...	2	....	2	1	1	...	...
	Fractured humerus	....	...	1	1	2	1	1	...	...
	Fractured inferior maxilla	....	...	1	....	1	1	....	...	...
	Fractured olecranon	....	...	1	....	1	1	....	...	...
	Fractured tibia	....	...	1	1	2	1	1	...	...
Total		74	3	804	601	1,482	583	852	5	42

Obstetrical record.

Month.	White.		Colored.		Total.	Forceps.	Podalic version.	Lacerations.	Post partum hemorrhage.	Stillbirths.	Premature births.	Head.	Breech.	Foot.	Primipara.	Multipara.
	Male.	Female.	Male.	Female.												
July	....	....	12	8	20	....	....	7	1	5	....	18	1	1	11	9
August	....	....	7	8	15	....	....	5	....	2	1	15	....	....	6	9
September	....	....	6	13	19	....	....	8	....	9	3	19	....	....	12	7
October	....	2	15	6	23	1	....	9	....	3	4	21	1	1	15	8
November	....	....	21	13	34	....	....	7	....	3	1	32	1	1	20	14
December	....	1	12	9	22	....	....	8	....	1	....	22	....	....	9	13
January	....	....	10	13	23	....	....	16	....	2	....	23	....	....	11	12
February	....	....	10	7	17	....	....	11	....	5	1	13	....	4	12	5
March	....	....	7	8	15	....	1	3	....	2	....	15	....	....	4	11
April	....	....	14	10	24	....	....	2	....	....	1	24	....	....	15	9
May	....	....	12	10	22	....	....	4	....	....	2	19	3	....	13	9
June	....	....	11	3	14	....	....	4	....	3	....	13	1	....	6	8
Total	....	3	137	108	248	1	1	84	1	35	13	234	7	7	134	114

Cases treated in out-patient department.

Diagnosis.	White.		Colored.		Total.
	Male.	Female.	Male.	Female.	
Medical.					
Anæmia			3	4	7
Adenitis			4	6	10
Alcoholism	1		2	1	4
Angina pectoris				2	2
Aortic insufficiency	1		7		8
Arthritis				1	1
Arteriosclerosis			5	3	8
Asthma:					
Bronchial	1		4	4	9
Cardiac	1		1		2
Auto-intoxication			2		2
Bronchitis:					
Acute	4		90	87	181
Chronic			16	10	26
Cancer of mouth			2		2
Cardiac hypertrophy			6	2	8
Cardiac neuroses			3	1	4
Cellulitis				1	1
Cephalalgia				3	3
Cholera infantum			3		3
Cholecystitis			2	2	4
Colitis			1	1	2
Constipation			28	45	73
Coryza			17	10	27
Debility	2		9	30	41
Debility, senile			1	2	3
Diabetes mellitus			1		1
Emphysema	1		3	2	6
Endocarditis			1		1
Enteralgia				1	1
Enteritis			6	7	13
Enterocolitis	2		5	8	15
Gastralgia			1	6	7
Gastritis:					
Acute			21	25	46
Chronic			5	16	21
Gastro-enteritis			3		3
Gastric indigestion			9	20	29
Gastric ulcer			1	1	2
Goitre, exophthalmic				1	1
Hernia, umbilical			1		1
Hemorrhoids			8	2	10
Hepatitis			14	16	30
Indigestion, intestinal			34	46	80
Influenza			18	14	32
Ileocolitis			2		2
Lymphangitis				1	1
Malaria			16	6	22
Mastitis				2	2
Migraine				8	8
Mitral insufficiency			12	11	23
Myalgia			20	12	32
Myositis			4	3	7
Myocarditis			1	1	2
Nephritis:					
Acute			3	3	6
Chronic			8	7	15
Parotitis			3	3	6
Pericarditis				1	1
Pleurisy			8	8	16
Pleurodynia			5	7	12
Rheumatism			59	52	111
Rheumatism, acute articular			14	14	28
Rheumatoid arthritis			1	1	2
Tuberculosis, pulmonary			43	48	91
Tachycardia				1	1
Typhoid			1	2	3
Varicose veins			4	3	7
Worms			5	7	12
Wounds:					
Contused			6	10	16
Infected			2	4	6
Undiagnosed			105	121	226
Total	13		659	716	1,388

Diagnosis.	White.		Colored.		Total.
	Male.	Female.	Male.	Female.	
Surgical.					
Abscess:					
Head			16		16
Neck			4	1	5
Arm			6		6
Hand			4	3	7
Leg			2	1	3
Foot			4	1	5
Breast				3	3
Ischio-rectal				1	1
Adenitis:					
Cervical			4	6	10
Inguinal			15	1	16
Burns			2		2
Bursitis			3	4	7
Cellulitis:					
Chin			1		1
Hand				2	2
Thigh			1		1
Clavis, infected				3	3
Chancroids			5	1	6
Chondromata			1		1
Condolymata			1		1
Cysts, sebaceous			12		12
Dislocations:					
Shoulder				2	2
Semilunar cartilages				3	3
Sacroiliac joint				1	1
Wrist			1		1
Femur				1	1
Finger			1		1
Epulis				1	1
Fracture, humerus			1		1
Foreign bodies:					
Throat			1		1
Hand			5	3	8
Thigh			4	2	6
Foot	1		3		4
Fibroma			1	1	2
Fistula			11		11
Furuncle			1	1	2
Ganglion			1	2	3
Gangrene finger				1	1
Galactocele				1	1
Granulations, exuberant			3	1	4
Gunshot wound, hand			1		1
Gumma			1	2	3
Hemorrhoids		3	2		5
Hernia, inguinal			2		2
Hematoma				1	1
Infections:					
Finger	2			6	8
Shoulder			1		1
Hand			6	4	10
Thigh			1	2	3
Keloids			5	2	7
Lipoma			2		2
Orchitis			1		1
Papilloma			3	1	4
Periostitis			4		4
Phimosis			22		22
Pleuritis				1	1
Peritonitis, tubercular			1	1	2
Retention of urine			2		2
Retained placenta				1	1
Sequestrium			1		1
Sprains:					
Shoulder			1		1
Wrist			4	1	5
Leg			1		1
Knee				1	1
Foot			3		3
Ankle			1		1
Stricture			4		4
Synovitis			1		1

Cases treated in out-patient department—Continued.

Diagnosis.	White.		Colored.		Total.
	Male.	Female.	Male.	Female.	
Surgical—Continued.					
Tuberculosis of bone:					
Sterum	....	....	1	.....	1
Sacrum	....	....	1	.....	1
Joints, wrist	....	....	1	.....	1
Tenosynovitis	....	....	1	.....	1
Tongue tie	....	....	2	.....	2
Ulcer:					
Head	....	....	3	2	5
Leg	....	....	4	1	5
Varicocele	....	....	1	.....	1
Vaccinations	....	....	101	85	186
Verruca	....	....	4	1	5
Wounds:					
Contused	....	....	5	.....	5
Incised	....	....	7	.....	7
Lacerated	....	....	2	3	5
Punctured	....	....	8	.....	8
Total	3	3	325	162	493
Surgical dressings	....	....	.....	.....	1,168
Gynecological.					
Adhesions, post operative	....	....	.....	2	2
Amenorrhea	....	....	.....	6	6
Cancer of cervix	....	....	.....	1	1
Cervicitis	....	....	.....	8	8
Cervix, lacerated	....	....	.....	3	3
Chancroid	....	....	.....	3	3
Condylomata of vulva	....	....	.....	2	2
Cystitis	....	....	.....	12	12
Cystocele	....	....	.....	4	4
Dysmenorrhea	....	....	.....	16	16
Endocervicitis	....	....	.....	4	4
Endometritis	....	....	.....	14	14
Fibroid of uterus	....	....	.....	9	9
Hematuria	....	....	.....	1	1
Hernia, ventral	....	....	.....	1	1
Leucorrhea	....	....	.....	15	15
Lacerated perineum	....	....	.....	25	25
Menopause	....	....	.....	12	12
Menorrhagia	....	....	.....	4	4
Metritis	....	....	.....	4	4
Metrorrhagia	....	....	.....	5	5
Miscarriage	....	....	.....	2	2
Ovaritis	....	....	.....	19	19
Pregnancy	....	....	.....	18	18
Prolapse of uterus	....	....	.....	5	5
Pruritis vulvæ	....	....	.....	2	2
Pyosalpinx	....	....	.....	3	3
Retroversion of uterus	....	....	.....	16	16
Salpingitis	....	....	.....	14	14
Urethritis	....	....	.....	15	15
Vaginitis	....	....	.....	7	7
Vaginitis, gonorrheal	....	....	.....	14	14
Vaginissimus	....	....	.....	1	1
Vulvo-vaginal abscess	....	....	.....	1	1
Undiagnosed	....	....	.....	51	51
Total	....	....	.....	319	319
Nervous diseases.					
Dementia præcox	....	....	1	.....	1
Chorea	....	....	.....	2	2
Cerebral embolus	....	....	1	.....	1
Cerebral hemorrhage	....	....	2	.....	2
Epilepsy	....	....	6	2	8
Neurasthenia	1	....	15	19	35
Neuralgia	....	....	19	22	41
Neuritis	....	....	1	3	4
Neuroses, occupation	....	....	4	2	6

Diagnosis.	White.		Colored.		Total.
	Male.	Female.	Male.	Female.	
Nervous diseases—Cont'd.					
Paralysis:					
Facial	....	....	6	2	8
Agitans	....	....	3	1	4
Sciatica	....	....	7	4	11
Syphilis, cerebral	....	....	2	.....	2
Vertigo	....	....	5	4	9
Undiagnosed	....	....	2	7	9
Tabes dorsalis	....	....	2	.....	2
Total	1	....	76	68	145
Ear, nose, and throat.					
Abscess of ear	....	....	.....	2	2
Abscess:					
Post-pharyngeal	....	....	5	3	8
Peritonsillar	....	....	3	2	5
Adenoids	....	....	20	12	32
Cancer of nose	....	....	1	.....	1
Cerumen, impaction of	1	....	12	8	21
Eczema, external meatus	....	....	2	3	5
Elongated uvula	....	....	4	2	6
Epistaxis	....	....	2	1	3
Laryngitis:					
Acute	....	....	5	4	9
Chronic	....	....	2	3	5
Luetic	....	....	2	4	6
Polypi	....	....	1	.....	1
Rhinitis:					
Atrophic	....	....	4	5	9
Hyperthrophic	....	....	11	7	18
Acute	....	....	16	5	21
Turbinate bones, hypertrophy of	....	....	5	10	15
Tonsilitis:					
Acute	1	....	16	19	36
Follicular	....	....	12	15	27
Tonsil lingual, hypertrophy of	....	....	3	5	8
Ulcer of mouth	....	....	4	2	6
Otitis media	....	1	12	6	19
Pharyngitis:					
Acute	....	1	40	33	74
Chronic	....	....	21	26	47
Luetic	....	....	5	4	9
Total	2	2	208	181	393
Eye.					
Ambylopia	....	....	.....	1	1
Angio-sclerosis	....	....	1	4	5
Arterio-sclerosis	....	....	.....	1	1
Astigmatism	....	....	4	5	9
Blepharitis	....	1	5	8	14
Cataract	....	....	5	4	9
Chalazion	1	....	2	7	10
Choroiditis	....	....	3	5	8
Corneal opacity	....	....	5	2	7
Corneal ulcer	....	....	6	6	12
Conjunctivitis:					
Simple	1	1	11	16	29
Follicular	....	....	10	22	32
Catarrhal	....	....	6	5	11
Phyctenular	....	....	2	4	6
Foreign body in eye	....	....	7	8	15
Fistula, lacrymal	....	....	1	.....	1
Hordeoleum	....	....	3	7	10
Iritis	1	....	6	5	12
Myopia	....	....	4	4	8
Optic atrophy	....	....	4	2	9
Optic neuritis	....	....	4	.....	4

Cases treated in out-patient department—Continued.

Diagnosis.	White.		Colored.		Total.
	Male.	Female.	Male.	Female.	
Eye—Continued.					
Ophthalmia:					
Gonorrheal	....	....	.....	1	1
Neonatorum	....	....	1	.....	1
Pterygium	....	....	1	2	3
Presbyopia	....	....	3	5	8
Refraction	2	1	27	30	60
Retinitis	....	....	8	12	20
Strabismus	....	....	.....	1	1
Ptosis	....	....	1	.....	1
Pan opthalmitis	....	....	2	.....	2
Undiagnosed	....	....	34	46	80
Total	5	3	166	212	386
Genito-urinary.					
Adenitis	....	....	6	.....	6
Chancre	....	....	4	.....	4
Chancroid	....	....	20	2	22
Cystitis	....	....	6	8	14
Epidymitis	....	....	5	.....	5
Gonorrhea	....	....	24	4	28
Gonorrhea, chronic	....	....	6	.....	6
Phimosis	....	....	6	.....	6
Periurethral abscess	....	....	1	.....	1
Prostatitis	1	....	3	.....	4
Stricture urethra	....	....	12	.....	12
Urethritis:					
Anterior	....	....	31	3	34
Posterior	....	....	20	.....	20
Vesiculitis	....	....	3	.....	3
Varicocele	....	....	1	.....	1
Venereal wart	....	....	2	.....	2
Undiagnosed	....	....	71	.....	71
Total	1	....	221	17	239
Dermatology.					
Acne	....	....	3	4	7
Acne vulgaris	....	....	14	6	20
Chloasma	....	....	.....	1	1
Condylomata	....	....	.....	2	2
Dermatitis	....	....	1	4	5
Dermatitis, infective	....	....	5	.....	5
Eczema	....	....	11	11	22
Eczema, follicular	....	....	2	4	6
Erysipelas	....	....	1	.....	1
Herpes	....	....	5	3	8
Herpes zoster	....	....	1	3	4
Impetigo	....	....	2	1	3
Dermatology—Cont'd.					
Impetigo, contagiosa	....	....	1	4	5
Pediculi capitis	....	....	.....	2	2
Pediculi corporis	....	....	3	.....	3
Pityriasis	....	....	.....	3	3
Poison, ivy	....	....	.....	1	1
Palmar keratoses	....	....	1	.....	1
Ringworm	....	....	5	.....	5
Scabies	....	....	14	14	28
Scleroderma	....	....	1	.....	1
Seborrhea	....	....	2	.....	2
Syphilis	....	1	35	23	59
Congenital	....	....	4	1	5
Secondary	....	....	13	6	19
Tertiary	....	....	5	7	12
Tinea circinata	....	....	2	.....	2
Tinea tonsurans	....	....	9	3	12
Tinea versicolor	....	....	1	3	4
Urticaria	....	1	2	8	11
Varicella	....	....	1	3	4
Varicose ulcer	....	....	.....	1	1
Vitiligo	....	....	1	.....	1
Lupus vulgaris	....	....	1	1	2
Phlegmon	1	....	.....	.....	1
Undiagnosed	....	....	15	10	25
Total	1	2	161	129	293
Tubercular, pulmonary	....	....	22	24	46
Pediatrics.					
Bronchitis:					
Acute	....	....	7	5	12
Capillary	....	....	.....	1	1
Constipation	....	....	3	1	4
Coriza	....	....	1	2	3
Eczema	....	....	2	1	3
Febricula	....	....	1	1	2
Gastritis	....	....	4	1	5
Herpes	....	....	3	1	4
Ileocolitis	....	....	2	1	3
Inanition	....	....	3	2	5
Influenza	....	....	1	1	2
Mitral insufficiency	....	....	3	1	4
Parotitis	....	....	2	3	5
Pertussis	....	....	3	1	4
Rachitis	....	....	1	5	6
Stomatitis	....	....	1	2	3
Tinea	....	....	1	1	2
Tonsilitis	....	....	.....	2	2
Total	....	....	38	32	70

Emergency cases.

	White.		Colored.		
	Male.	Female.	Male.	Female.	Total.
Acute alcoholism	6	2	4	2	14
Abscess:					
Alveolar			2	2	4
Breast			1	2	3
Foot	1		1		2
Face			4	2	6
Acute gastritis			6	3	9
Acute retention urine			10	1	11
Burn:					
Arm	2		3	5	10
Face	1		1	2	4
Leg		1			1
Cellulitis, hand			1		1
Conjunctivitis, traumatic			2		2
Dislocations:					
Finger	3		7		10
Humerus			4		4
Inferior maxilla			3	1	4
Patella	1				1
Epilepsy	2		3		5
Epistaxis			3		3
Fallen arches, foot				1	1
Fractures:					
Clavicle	1				1
Colles	1		4	2	7
Finger			3		3
Humerus	1		1		2
Ribs			3	2	5
Foreign bodies:					
Ear			2		2
Eye	3		7	1	11
Hand			8	13	21
Throat			4	10	14
Gas intoxication			1		1
Hysteria				2	2
Infections, hand	9		21	20	50
Impacted fracture radius	1				1
Ingrown toe nail				2	2
Inguinal adenitis, suppurative			1		1
Insect and dog bites	3		8	2	13

	White.		Colored.		
	Male.	Female.	Male.	Female.	Total.
Lumbago	1				1
Paraphymosis			3		3
Prolapsed rectum			1		1
Secondary hemorrhage			1	1	2
Shock			1		1
Sprains:					
Ankle			6	3	9
Elbow			4		4
Finger	2		2	2	6
Hip			2		2
Knee	2		2		4
Shoulder			4		4
Wrist	2		6	1	9
Wounds:					
Contused—					
Face	3		12	4	19
Foot	8		19	1	28
Hand	8		16	3	27
Scalp			7	2	9
Shoulder	1	1	12	4	18
Gunshot—					
Hand			2		2
Thigh			1		1
Incised—					
Body			4		4
Face	4	1	31	11	47
Foot	1		8	1	10
Finger	7		42	16	65
Scalp	2		17	4	23
Lacerated—					
Body			1	1	2
Face	13	1	55	22	91
Foot	1		15	1	17
Hand	16		54	12	82
Scalp	7	1	45	9	62
Punctured—					
Body			5	1	6
Face			3	1	4
Foot	6	1	22	5	34
Hand	2	2	17	9	30
Total	121	10	538	189	858

Occupation of patients.

Occupation.	White.		Colored.		
	Male.	Female.	Male.	Female.	Total.
Actor			1		1
Baker	2				2
Barkeeper	1		3		4
Barber	3		22		25
Bellman	1		8		9
Blacksmith			3		3
Bookbinder	1				1
Bootblack			3		3
Brickmaker			1		1
Brick mason	1		2		3
Broker			1		1
Butcher			2		2
Butler			3		3
Candy maker			1		1
Canvasser	2		1		3
Carpenter	4		7		11
Cement maker			1		1
Chauffeur			1		1
Clerk	5		8	1	14
Coachman			3		3

Occupation.	White.		Colored.		
	Male.	Female.	Male.	Female.	Total.
Collector	1		1		2
Cook	1		21	7	29
Decorator	1				1
Deck hand			1		1
Dishwasher			2		2
Dentist			1		1
Driver	2		40		42
Domestic		14		885	899
Drug clerk	1		2		3
Editor			1		1
Engineer			2		2
Elevator man			7		7
Embalmer			1		1
Expressman			4		4
Framer	6		35		41
Fireman			6		6
Florist			1	1	2
Gardener			1		1
Harness maker	1				1
Hostler			9		9

Occupation of patients—Continued.

Occupation.	White.		Colored.		Total.
	Male.	Female.	Male.	Female.	
Huckster			1		1
Janitor	1		10		11
Jockey			1		1
Laundress				98	98
Laborer	23		497		520
Lawyer	1				1
Lather			1		1
Lecturer			1		1
Milkman	1				1
Miner			3		3
Matron				1	1
Mechanic	1		2		3
Merchant			4		4
Minister	1		9		10
Messenger			8		8
Molder	1				1
Musician			1		1
Newsboy			1		1
Nurse				16	16
No occupation	6	2	56	114	178
Painter			6		6
Physician			5		5
Photographer	1				1
Plasterer	1		4		5
Plumber			3		3
Postman			2		2
Printer			4		4
Produce dealer			1		1
Porter			27		27
Sailor	5		5		10
Seamstress				28	28
Shoemaker			4		4
Soldier	13		2		15
Stenographer		1			1
Storekeeper				1	1
Student	4		101	193	298
Tailor	1		3		4
Teacher			5	3	8
Tinsmith	1		2		3
Trainman	1				1
Undertaker			1		1
Waiter			35		35
Waitress				12	12
Watchman			8		8
Wireman			1		1
Total	95	17	1,020	1,360	2,492

Nativity of patients.

Nativity.	White.		Colored.		Total.
	Male.	Female.	Male.	Female.	
Alabama			11	3	14
Arkansas			2		2
Colorado				1	1
Connecticut			1	2	3
Delaware			2	2	4
District of Columbia	18	4	276	412	710
Florida			8		8
Georgia			13	7	20
Illinois			1	2	3
Indiana	1			1	2
Iowa				1	1
Kentucky	2		4	5	11
Louisiana	1	1	2	1	5
Maine	2		2		4
Maryland	16	2	197	255	470
Massachusetts	1		4	2	7
Michigan			2		2
Minnesota	1				1
Mississippi			3	1	4
Missouri	2			1	3
Nebraska	1				1
New Jersey	1		2	2	5
New Mexico			1		1
New York	2		8	5	15
North Carolina			50	50	100
Ohio	1		3	2	6
Pennsylvania	9	1	17	12	39
Rhode Island			1		1
South Carolina			26	24	50
Tennessee	1		8	2	11
Texas	1		1	2	4
Vermont	1				1
Virginia	7	8	350	543	908
West Virginia			12	15	27
Austria	1				1
Bermuda				1	1
British Guiana			1		1
British West Indies			7	2	9
Canada	1			3	4
Denmark	2				2
Germany	6				6
Haiti				1	1
Ireland	13				13
Italy	3				3
Norway		1			1
Panama			5		5
Spain	1				1
Total	95	17	1,020	1,360	2,492

Patients admitted each year for the past thirty-six years.

Year ending June 30:		Year ending June 30:		Year ending June 30:	
1875	190	1887	2,017	1899	2,374
1876	319	1888	1,997	1900	2,427
1877	500	1889	2,074	1901	2,414
1878	519	1890	2,392	1902	2,408
1879	642	1891	2,373	1903	2,677
1880	819	1892	2,331	1904	2,907
1881	892	1893	2,422	1905	2,918
1882	1,102	1894	2,801	1906	2,207
1883	1,373	1895	2,476	1907	2,366
1884	1,509	1896	2,596	1908	2,669
1885	1,794	1897	2,815	1909	2,590
1886	1,923	1898	2,355	1910	2,740

Summary.

	1910.					1909.				
	White.		Colored.		Total.	White.		Colored.		Total.
	Male.	Female.	Male.	Female.		Male.	Female.	Male.	Female.	
In hospital July 1, 1908						2	1	52	76	131
In hospital July 1, 1909	9	1	49	70	129					
Admitted	91	13	1,020	1,368	2,492	104	19	956	1,267	2,346
Births		3	137	108	248	1	1	126	116	244
Total under care	100	17	1,206	1,546	2,869	107	21	1,134	1,459	2,721
Died	1	3	125	108	237	11	5	121	124	261
Discharged:										
Recovered					1,128					1,288
Improved					1,109					915
Unimproved					236					121
Not treated					5					7
Total died and discharged					2,715					2,592
In hospital July 1, 1910	2	3	70	79	154	9	1	49	70	129
Operations	74	3	804	601	1,482	61	12	435	369	877
Result of operations:										
Recovered					583					793
Improved					852					52
Unimproved					5					5
Died					42					27
Emergencies	121	10	528	189	858	157	18	587	200	961
Days' maintenance furnished District patients					39,623					37,326
Days' maintenance furnished United States patients					19,792					20,793
Total days' maintenance					59,415					58,119
Largest number of patients at any one time					191					193
Smallest number of patients at any one time					134					98
Daily average number of patients					161.9					154
District patients admitted, including births					1,931					1,836
Nonresidents admitted					561					885
Number treated in out-patient department:										
Medical	13		659	716	1,388	16	1	682	758	1,457
Surgical	3	3	325	162	493	1	1	226	72	300
Ear, nose, and throat	2	2	208	181	393	2		230	247	479
Eye	5	3	166	212	386	3		141	169	313
Gynecological				319	319				192	192
Nervous	1		76	68	145	3		54	77	134
Dermatology	1		2			4		158	96	258
Genito-urinary	1		221	17	239	11		213	1	225
Tubercular			22	24	46					
Pediatrics			38	32	70					
Surgical dressings					1,168					
Total	26	8	1,717	1,731	4,647	40	2	1,704	1,612	3,258

NEEDS OF THE HOSPITAL.

The greatest need of the hospital is a building to properly house the nurses, whose valuable services are so essential to good results in the care of the sick. The health of the nurses is of first importance, and the initial step in the preservation of the same is suitable quarters.

A building in which the pathological work can be done is very urgent. This work is as essential as the hospital itself in rendering the best service to those who seek medical and surgical aid here. It is believed this building can be constructed for approximately $12,500.

Another need is an additional wing for pay patients. The demand for admission from those who are able and willing to pay is on the increase, due in great measure, no doubt, to their inability to obtain at any cost satisfactory treatment elsewhere. In making provision for this class, however, I am of the opinion that it would be unwise to set aside any part of the present building for such service, as has been suggested by some, but that a new wing is the only means by which satisfactory service can be had for this class of patients.

A fence inclosing the hospital grounds is also urgent. The 11 acres, containing many shade trees, which would be of great value in the open-air treatment of many cases, can not be utilized until the curious crowds are excluded.

Account with the Board of Charities from July 1, 1905, to June 30, 1910.

Fiscal year ended—	Adults.	Children.	Babies.	Total.	Bills rendered.	Payment received.	Balance due.
1906	1,675	96	165	1,936	$38,223.75	$25,500	$12,723.75
1907	1,809	119	167	2,095	36,184.80	25,500	10,684.80
1908	1,661	119	184	1,964	34,470.55	25,500	8,970.55
1909	1,566	89	181	1,836	38,846.40	25,500	13,346.40
1910	1,719	127	176	2,018	41,640.85	25,500	16,140.85
Total	8,430	546	783	9,849	189,366.35	127,500	61,866.35

The unpaid balance on this account, if paid, would be sufficient to provide a building for the nurses' home and other urgent needs, and it appears that some steps should be taken whereby the Commissioners of the District of Columbia could be induced to include in their estimates to Congress a sum sufficient to cover the contract price for the care of all patients admitted as residents of the District of Columbia.

Receipts and expenditures for the year.

Receipts:		
Appropriation, sundry civil bill—		
For support	$15,000.00	
Salaries	28,500.00	
Appropriation, District of Columbia—		
Appropriation bill (under contract with Board of Charities)	25,500.00	
		$69,000.00
Expenditures:		
Miscellaneous (fuel, light, clothing, forage, medicines, etc.)	21,100.73	
Subsistence	18,450.96	
Salaries	27,956.13	
		67,507.82

Detailed statement of miscellaneous expenditures.

Drugs	$1,782.05
Coal	4,113.65
Wood	84.75
Forage	385.66
Lumber	63.43
Laundry supplies	731.85
Horseshoeing	41.13
Telephone	321.33
Gas	440.55
Electric light	2,121.24
Electric power	1,954.08
Bed clothing	367.06
Dry goods	1,988.82
Wines	39.60
Tools	71.99
Whisky	24.95
Publications	15.00
Stationery	521.31
Electric supplies	149.71
Plumbing material	356.80
Laboratory supplies	$174.50
X-ray supplies	116.06
Household and ward furniture	1,328.82
Instruments	263.43
Medical and surgical supplies	2,445.11
Alcohol	92.98
Paint	132.95
Sundries	111.79
Repairs to—	
Household and ward furniture	488.41
Harness	17.25
Ambulance	71.85
Wagon	62.70
Instruments	76.07
Heating plant	166.85
X-ray	13.00
	21,100.73

Detailed statement of subsistence expenditures.

Groceries and provisions:	
Ice	$795.00
Butter	1,681.10
Eggs	1,026.15
Fish	533.42
Oysters	163.60
Clams	45.60
Poultry	1,711.07
Bread	1,425.28
Milk	2,026.57
Cheese	27.24
Tea	27.25
Coffee	217.14
Mutton	1,040.38
Beef	$1,206.56
Liver	73.44
Sausage	121.80
Smoked meats	935.84
Fruits and vegetables	1,840.69
Dried fruits	1,781.13
Crackers	247.47
Flour	227.50
Corn meal	24.48
Salt	10.09
Canned goods	958.89
Sundries	303.02
Total	18,450.96

Statement of the appropriation for salaries required by the sundry civil act approved March 4, 1909 (35 Stats., 992).

Surgeon in chief	$3,000
Resident assistant surgeon	1,500
Resident physician	1,200
Clerk	1,200
Assistant clerks (2)	600 540
Pharmacist	720
Resident assistant pharmacist	120
Pathologist	2,000
Resident anæsthetist	1,200
Resident superintendent of nurses	1,080
Resident assistant superintendent of nurses	540
Resident night supervisor of nurses	480
Resident head nurses (2) at $480 each	960
Seamstress	300
Engineer	1,200
Assistant engineer	900
Firemen (3) at $720 each	2,160
Resident pupil nurses (34) at $60 each	2,040
Maids (3) at $168 each	504
Resident orderlies (2) at $300 each	600
Resident orderlies (2) at $240 each	480
Steward	720
Cook, head	540

Cook, second	$360
Cook, third	288
Waiters (3) at $144 each	432
Resident driver	360
Driver	360
Laundryman	420
Laundresses (5) at $144	720
Resident watchmen (2) at $200 each	400
Laborer	216
Laborers (2) at $180 each	360
	28,500

TRAINING SCHOOL FOR NURSES.

The Freedmen's Hospital Training School for Nurses, organized in 1894, offers a course of three years' instruction to women desirous of learning the art of caring for the sick. The theoretical knowledge is obtained from lectures, demonstrations, and classes. The practical experience in medical, surgical, obstetrical, and gyneological nursing is gained in the wards of the hospital which contain 278 beds, affording ample material for observation and instruction.

Candidates wishing to enter the school should apply to the surgeon in chief or the superintendent of the school for application blank, which, when properly filled, must be returned to the hospital accompanied by a statement from a clergyman testifying to good moral character, and one from a physician certifying to sound health and unimpaired faculties. No candidate will be considered who is not in good physical condition.

Applicants must be between 21 and 35 years of age, and of at least average weight and good physique, and must give satisfactory evidence of a general fitness of disposition and temperament for the work of nursing.

A common-school education is indispensable, but women of superior education and cultivation will be preferred, provided they are satisfactory in other respects.

An entrance examination is given to all candidates during the term of probation in reading, penmanship, English, composition, and simple arithmetic, including fractions and percentage, unless they hold a diploma from some acceptable school.

The school has no fixed date for entrance, but candidates are, as a rule, received during the spring and summer, or when a vacancy occurs.

Upon the recommendation of the superintendent of nurses and the approval of the surgeon in chief, applicants will be received on two months' probation. The fitness of candidates for the training and work and the propriety of retaining them during or at the expiration of the probationary period will be determined by the superintendent of nurses, with the approval of the surgeon in chief.

Those who prove satisfactory are accepted after signing a written agreement to remain in the school for three years, including the probationary months, to obey the rules of the school and hospital, and to be subordinate to the authorities governing the same.

Pupils receive board, lodging, and laundry from the date of entrance. After the expiration of the probationary period, if accepted, an allowance of $5 per month and uniform will be given.

This sum is not given as pay for service rendered, as the training given and the profession acquired is considered an ample equivalent, but simply to enable young women without pecuniary resources to enter upon their professional career free from debt.

The probationer provides her own dress.

The training school authorities reserve the right to terminate the connection of a pupil with the school at any time in case of misconduct, inefficiency, or neglect of duty.

A vacation of two weeks is allowed each year, the service permitting. In case of sickness all pupils will be cared for gratuitously; time thus lost will be added to the three years.

The commencement exercises were held May 18, 1910, at which time 11 nurses graduated, they having passed, satisfactorily, examinations in the various subjects constituting the course of study.

Too much emphasis can not be placed upon the importance of the educational work which the hospital is doing through its training school. Founded in 1894, it has graduated 204 nurses, who to-day constitute the greater proportion of colored trained nurses in the United States.

The nursing staff consists of superintendent of nurses, assistant superintendent of nurses, night supervisor, operating-room nurse, and clinic nurse.

The course of training was extended to three years beginning September, 1909. The hospital as well as the nurses will be benefited by this change.

Applications, resignations, dismissals, etc.

Applications received	130	Dismissed	1
Applicants taken on probation	23	Resigned	5
Accepted	15	Graduated May 18, 1910	11

Graduates of 1910.

Amby, Grace.
Brown, Nellie V.
Everett, Sankey B.
Gates, Eugene J. P.
Gilliam, Octavia T.
Hutchinson, Mabel M.
Jackson, Sara E.
Jordan, Maggie M.
McClaine, Nettie L.
Richardson, Lizzette S.
Reid, Marion M.

The course of lectures was delivered by the following staff:

Gynecology	W. A. Warfield, M. D.
Anatomy	S. L. Carson, M. D.
Physiology	C. A. Brooks, M. D.
Surgery	H. H. Kerr, M. D.
Obstetrics	E. D. Williston, M. D.
Operative surgery	Wm. A. Jack, M. D.
Hygiene	Neil D. Graham, M. D.
Nervous diseases	J. C. Tappan, M. D.
Bacteriology and urinalysis	W. Van Swearengen, M. D.
Medical nursing	Henry Parker, M. D.
Materia medica	J. J. Mitchell, M. D.
Diseases of children	John R. Francis, M. D.
Diseases of the eye	M. O. Dumas, M. D.
Cooking and theoretical nursing	Miss Julia A. Duffy.
Practical and theoretical nursing	Miss Laura R. MacHale.

COURSE OF INSTRUCTION.

FIRST YEAR.

Anatomy—Six lectures, one hour each.
Physiology—Eight lectures, one hour each.
Hygiene—Four lectures, one hour each.
Bandaging—Two lectures, one hour each.
Practical and theoretical nursing—One lecture a week, one hour each, from October 1 to May 1.

SECOND YEAR.

Materia medica—Six lectures, one hour each.
Bacteriology and urinalysis—Five lectures, one hour each.
Medical nursing, including the acute infectious diseases—Five lectures, one hour each.
Surgical nursing, including anæsthetics—Eight lectures, one hour each.
Dietetics—Ten lectures, one hour each.
Practical and theoretical nursing—One lecture a week, one hour each, from October 1 to May 1.

THIRD YEAR.

Obstetrics—Six lectures, one hour each.
Children's diseases, including the feeding of infants—Four lectures, one hour each.
Diseases of the eye—Three lectures, one hour each.
Diseases of the ear, nose, and throat—Four lectures, one hour each.
Gynecology—Six lectures, one hour each.
Nervous diseases—Four lectures, one hour each.
Practical and theoretical nursing—One lecture a week, one hour each, from October 1 to May 1.

First-year practical demonstrations.

[Each lesson one and one-half hours long.]

OCTOBER.

First lesson—Bed making; management of helpless patients—moving, changing, giving baths.
Second lesson—Note taking; pulse, temperature, respiration, mental condition.
Third lesson—The temperature; the thermometer, its use and care; excretions; eruptions.
Fourth lesson—Pulse; quality, rhythm, number, etc.; hypodermic syringe, its care and use.

NOVEMBER.

Fifth lesson—Fomentations; poultices; sand bags; ice cap, its care; ice coil.
Sixth lesson—The hot-water bag or bottle, use and abuse; care of instruments, sterilizing, etc.; care of rubber gloves, methods of sterilizing.
Seventh lesson—Administering of enemata, douches, cantharides, etc.; Murphy infusion.
Eighth lesson—Counter irritations, mustard, cantharides, etc.; physiological action; dry cupping.
Ninth lesson—Hypodermoclysis; intra-venous or infusion; preparation of solution; patient, instruments.

DECEMBER.

Tenth lesson—Positions: Dorsal, Sims, Trendelenberg, Fowler's, knee and chest; lithotomy.
Eleventh lesson—Prevention and treatment of bed sores.
Twelfth lesson—Weights and measures, solutions.
Thirteenth lesson—Disinfection of clothing, excreta, sputum, etc.

JANUARY.

Fourteenth lesson—Bandaging, making and use; material, Esmark.
Fifteenth lesson—Care of patient before, during, and after anæthesia.
Sixteenth lesson—Care of patient before, during, and after operation, and preparation of patient for operation.
Seventeenth lesson—Preparation of room for operation, sterilization, etc.

FEBRUARY.

Eighteenth lesson—Urine analysis, specific gravity, quantity reaction, Fehling's and Heller's tests.
Nineteenth lesson—Contagious-disease nursing, care of convalescents, feeding in particular.
Twentieth lesson—Infant feeding, sterilization, pasteurizing, child's first bath, care of eyes, buttocks, etc.
Twenty-first lesson—Administration of drugs, use and effect.

MARCH.

Twenty-second lesson—Care of the dead.
Twenty-third lesson—Fumigation.

Course in cooking.

LESSON I.

Barley water.
Toast water.
Albuminized milk.
Rice water.
Flaxseed lemonade.
Orangeade.
Oatmeal water.
Lemonade.
Koumiss.

LESSON II.

Eggnog.
Boiled coffee.
Wine whey.
Tea.
French coffee.
Cocoa.

LESSON III.

Broiled beef tea.
Arrowroot gruel.
Barley gruel.
Bottled beef tea.
Farina gruel.
Indian gruel.
Flour gruel.
Cracker gruel.
Hominy.

LESSON IV.

Dry toast.
Bread and butter sandwiches.
Boiled eggs.
Dropped egg on toast.
Water toast.
Raw beef sandwiches.
Souffled egg.
Milk toast.
Scrambled egg.

LESSON V.

Foamy omelet.
Eggs in butter.
Soft custard.
White custard.
Bread omelet.
Eggs a la goldenrod.
Junket custard.
Baked apples.
French omelet.
Baked custard.

LESSON VI.

Raw oysters.
Boiled oysters.
Clam stew.
Fancy roast.
Oyster roast.
Riced potatoes.
Oyster stew.
Clam water.
Mashed potatoes.

LESSON VII.

Broiled fish.
Potatoes au gratin.
Creamed sweetbreads.
Broiled potatoes.
White sauce.
Broiled sweetbreads.
Creamed potatoes.
Boiled rice.

LESSON VIII.

Mutton broth.
Broiled steak.
Broiled bone birds.
Cream soup.
Chicken broth.
Broiled chops.
Baked potatoes.
Steamed rice.
Crisp crackers.
Tomato.

LESSON IX.

Lemon jelly.
Irish moss blanc mange.
Snow pudding.
Lemon ice.
Orange jelly.
Rice pudding.
Tapioca cream.
Pineapple ice.
Wine jelly.

LESSON X.

Orange ice.
Lemon sherbet.
Vanilla ice cream.
Chocolate ice cream.

Three-year schedule.

SURGICAL EXPERIENCE.

Ward.	Day duty.	Night duty.
	Months.	*Months.*
Genito-urinary	3	1
Female surgical	3	1
Male surgical	3	1
Gynecological	3	1
Obstetrical	3	1
Emergency operating room	3	1
Main operating room	3	
Total	21	6

MEDICAL EXPERIENCE.

Male medical	3	1
Female medical	3	1
Diet kitchen	1	
Total	7	2
Grand total (2⅔ months each year)	28	8

The surgical experience includes four months' gynecological and four months' obstetrical.

OCCUPATION AND RESIDENCE OF GRADUATES.

1896.

Ashton, Luci V., private nurse, Kansas City, Mo.
Blackburn, N. L., private nurse, Philadelphia, Pa.
Burke, Julia (Mrs. Phillips), Jacksonville, Fla.
Fleetwood, Sara I., deceased.
Foust, Isabella L., private nurse, Winston, N. C.
Gibson, Katherine C., Bureau of Engraving and Printing, Washington, D. C.
Green, Anna N., deceased.
Owens, Laura A., private nurse, Washington, D. C.
Pierce, Letitia (Mrs. Blair), Kansas City, Mo.
Ricks, Antoinette M. (Mrs. Demby), Kansas City, Mo.
Robinson, Annie B., superintendent and matron, Good Samaritan Hospital, Charlotte, N. C.
Shorter, Sarah A., private nurse, Washington, D. C.
Simms, Annie A. (Mrs. Johnson), Baltimore, Md.
Smith, Gertrude (Mrs. Thorn), Washington, D. C.
Tyler, Elizabeth, private nurse, Northampton, Mass.

1897.

Caldwell, Amanda J. (Mrs. Darrell), Dallas, Tex.
Combs, Annie, massage specialist, Washington, D. C.
Green, Lucille (Mrs. Tibbs), St. Paul, Minn.
Griffin, G. Josephine, private nurse, Washington, D. C.
Haithcock, Ada, private nurse, Washington, D. C.
King, Annie C. (Mrs. Hughes), Richmond, Va.
Rollins, Willie M. (Mrs. Frazier), Washington, D. C.
Smith, S. May, private nurse, Troy, N. Y.
Thomas, Annie M., private nurse, Washington, D. C.
Thompson, Della R. (Mrs. Davis), Vienna, Va.
Underhill, Katherine P. (Mrs. Wm. Moten), Washington, D. C.

Webb, Eva, private nurse, Washington, D. C.
Warner, Florence A., private nurse, Springfield, Mass.
Young, Lola E. M., private nurse, Greenville, S. C.

1898.

Bannister, Carrie J., private nurse, Washington, D. C.
Bennett, Florence R., private nurse, Baltimore, Md.
Cabannis, Martha E., head nurse, Richmond Hospital, Richmond, Va.
Carter, Edith M., private nurse, New Rochelle, N. Y.
Davis, Annie M., private nurse, Shelbyville, Tenn.
Ennis, Sarah J. (Mrs. Brooks), Washington, D. C.
Gaines, Mary R., private nurse, Oakland, Cal.
Geder, Isabella, private nurse, Binghamton, N. Y.
Hurlong, Mary A., private nurse, Asheville, N. C.
King, Carrie M. (Mrs. Foreman), Buffalo, N. Y.
Robinson, Amelia A., private nurse, Nashville, Tenn.
Russell, Ruby E., private nurse, Charlottesville, Va.
Stanton, Priscilla (Mrs. Todd), Pittsburg, Pa.
Sumby, Lillie May, private nurse, Washington, D. C.
Valentine, J. Ella, private nurse, Lebanon, Ind.
Whitson, Clara E. (Mrs. Howe), Washington, D. C.

1899.

Banks, Effie P. (Mrs. Sykes), Indianapolis, Ind.
Brown, Agnes M., private nurse, Meyersdale, Pa.
Coleman, Georgia A., private nurse, Washington, D. C.
Dismond, S. Matthew (Mrs. Dibble), St. Louis, Mo.
Francies, Bertha A., head nurse, Home Hospital, Birmingham, Ala.
Hairston, Lula C. (Mrs. Crews), Winston, N. C.
Hankins, Mintha C., private nurse, Washington, D. C.
Hendricks, Eliza R. (Mrs. Brown)
Henry, Lillian M., private nurse, Downington, Pa.
Hoge, Carrie M., private nurse, Washington, D. C.
Keemer, Jessie E. (Mrs. Robinson), Providence, R. I.
McEwen, Irene O. (Mrs. Green), Pensacola, Fla.
Rich, Anna, private nurse, Hartford, Conn.
Scott, Helen V. (Mrs. Cole), Swansboro, Ga.
Thompson, Isabella, private nurse, New Orleans, La.
Wilson, Emma C., private nurse, Montgomery, Ala.
Williams, Elmira E., deceased.

1900.

Clarke, Mary F., private nurse, Richmond, Va.
Hamilton, Priscilla, deceased.
Hawkins, Nannie E., private nurse, Charlotte, N. C.
Hunton, Mary A. (Mrs. Gordon), St. Louis, Mo.
Johnson, Hattie B., private nurse, Mount Pleasant, N. C.
Lewis, Eva P., private nurse, Manassas, Va.
Mickens, Marcella C., private nurse, Pittsburg, Pa.
Middleton, Haga H., private nurse, Charleston, S. C.
Moody, Annie L., private nurse, Washington, D. C.
Smith, Cora V., private nurse, Camden, N. J.
Winfield, Laura, private nurse, Ware, Mass.

1901.

Allen, Margaret A., private nurse, Washington, D. C.
Barks, Susan C., private nurse, Washington, D. C.
Campbell, B. N., private nurse, Montgomery, Ala.
Dey, Mary L., private nurse, Philadelphia, Pa.
Hackley, Mamie E. (Mrs. Ash), Philadelphia, Pa.
Hanson, Carrie L., private nurse, Baltimore, Md.
Harrell, Catherine S. (Mrs. Butler), Texas.
Hunter, Bessie, private nurse, Washington, D. C.
Jackson, Eliza A., private nurse, Richmond, Va.
Jones, Mary J., private nurse, Washington, D. C.
Powell, Gussie D., private nurse, Richmond, Va.
Rhone, Charlotte S., private nurse, Newbern, N. C.
Robinson, Frances A., private nurse, Newbern, N. C.
Thomas, Bertha J., private nurse, Washington, D. C.
Walcott, Louisa M., private nurse, Rockhill, S. C.
Whitley, Florence A., private nurse, Newbern, N. C.

1902.

Adams, Ella C., private nurse, Philadelphia, Pa.
Baker, Vera L., head nurse, State Hospital, Goldsboro, N. C.
Booth, Mary S., private nurse, Bath, Me.
Delisse, Augusta V., private nurse, Brooklyn, N. Y.
Dias, Frances C., private nurse, Philadelphia, Pa.
Johnson, Gertrude B., private nurse, Niagara Falls, N. Y.
Mason, Corinna (Mrs. Phillips), Springfield, Mass.
Nichols, Florence L., private nurse, Newark, N. J.
Rogers, Amanda, private nurse, Indianapolis, Ind.
Roper, Maggie A., private nurse, Galveston, Tex.
Thompson, Rachel A. (Mrs. Thomas), deceased.

1903.

Browne, E. M., head nurse, Douglass Hospital, Philadelphia, Pa.
Baltimore, Mary E., private nurse, Harrisburg, Pa.
Christie, Sarah E., private nurse, Chester, Pa.
Coates, Maiella E., private nurse, Washington, D. C.
Hargrave, L. S., private nurse, Trenton, N. J.
Johnson, L. D., private nurse, Warrenton, N. C.
Johnson, Nellie V., private nurse, Abbeville, S. C.
Latney, Carrie L. (Mrs. Bowie), Washington, D. C.
Love, Ellen V., private nurse, Lumberton, N. C.
Purcell, E. J., private nurse, Brunswick, Ga.
Rollins, Clara A., private nurse, Washington, D. C.
Rutherford, Anna L., private nurse, Kingston, N. C.
Sharp, Carrie M., private nurse, Marion, Va.
Valentine, J. L. (Mrs. Dial), Jacksonville, Fla.
Yarborough, S. V. S., private nurse, Columbus, Ga.

1904.

Baker, Hattie E., private nurse, Darlington, S. C.
Blackwell, W. Lucille (Mrs. Morris), New York, N. Y.
Carter, Mary E., private nurse, Rippon, W. Va.
Carter, Elizabeth V., head nurse, Mercy Hospital, Philadelphia, Pa.
Grant, Anna E., private nurse, Savannah, Ga.
Gilmore, Mary E., private nurse, Leavenworth, Kans.
James, Aleathia D., private nurse, Rochelle, Fla.
Jeffries, Emma M., private nurse, Redbank, N. J.
Jones, Violet, private nurse, Hartford, Conn.
Lewis, Louzetta (Mrs. Mitchell), Montgomery, Ala.
Richardson, Effie V. (Mrs. McCoy), Washington, D. C.
Thomas, Marie E. (Mrs. Jones), Topeka, Kans.

1905.

Braxton, Margaret, private nurse, Hartford, Conn.
Brooks, Alpha E., private nurse, Institute, W. Va.
Carter, Marion M., private nurse, Washington, D. C.
Henderson, Hattie E., private nurse, Cleveland, Ohio.
Holmes, Julia E., private nurse, Plainfield, N. J.
Jefferson, Roxanna M., private nurse, Bristol, Tenn.
Kidd, Bertha M. (Mrs. Harris), Washington, D. C.
Long, Ida E., private nurse, Newark, N. J.
Maston, Mary J., head nurse, Red Cross Sanitarium, Louisville, Ky.
Scott, Julia E., private nurse, New Haven, Conn.
Teabout, Stella, private nurse, Richfield Springs, N. Y.
Taliaferro, Olivia, private nurse, Anacostia, D. C.
Terry, Jessie C., private nurse, Los Angeles, Cal.
Williams, Daisy M. (Mrs. Moten), Sherman, Tex.
Williams, Mary T., private nurse, Ware Neck, Va.
Wilson, Annabel, private nurse, Baltimore, Md.

1906.

Barnes, Annie, private nurse, Baltimore, Md.
Bearce, Daisy M., private nurse, Rye, N. Y.
Burruss, Mary E. (Mrs. Wormley), Jersey City, N. J.
Gordon, Mary B., private nurse, Washington, D. C.
Hall, Iona M., private nurse, Troy, Ohio.
Henderson, Sara O., private nurse, Newport, R. I.
Johnson, Harriett C., private nurse, Cleveland, Ohio.
Lewis, Willie A., private nurse, Atlanta, Ga.
Lucas, Marion V., head nurse, Freedmen's Hospital, Washington, D. C.

McDougal, Colota M., private nurse, Indianapolis, Ind.
McKnight, Viola, superintendent of nurses, Mercy Hospital, Philadelphia, Pa.
Marshall, Mary E., private nurse, Morristown, Tenn.
Merritt, Mary E., superintendent of nurses, Mitchell Hospital, Leavenworth, Kans.

1907.

Bullock, Blanche V., private nurse, Richmond, Va.
Childs, Helen D., private nurse, Philadelphia, Pa.
Escoffery, Lula M., private nurse, Atlantic City, N. J.
Harmon, Nannie M., private nurse, Tip Top, Va.
Porter, Susan H., private nurse, dean woman's department, Tuskegee, Ala.
Payton, Lillian M., private nurse, Washington, D. C.
Peck, Alice M., private nurse, Baltimore, Md.
Rose, Julia M., private nurse, Lynchburg, Va.
Slocum, Mary E., private nurse, Providence, R. I.
Smith, Minnie M., private nurse, Amherst, Mass.
Taylor, Loretta P., private nurse, Washington, D. C.
Wright, Nena J., private nurse, Washington, D. C.

1908.

Briggs, Cornelia K., head nurse, Freedmen's Hospital, Washington, D. C.
Denning, Clara S., private nurse, Canajoharie, N. Y.
ouglass, Kate E., private nurse, New Bedford, Mass.
Donaldson, Vesta L., private nurse, Ocean Grove, N. J.
Fray, Julia, private nurse, Washington, D. C.
Henderson, Jamima S., private nurse, Spring Lake, N. J.
Jones, Bertie L., private nurse, Harrisburg, Pa.
Nicholas, Beatrice E., private nurse, Baltimore, Md.
Proctor, Eva M., private nurse, Newark, N. J.
Robinson, Alice E., private nurse, Hartsville, S. C.
Reynolds, Agnes, private nurse, Ironton, Ohio.

1909.

Allen, Irene P. (Mrs. Martin), Washington, D. C.
Burnett, Sarah L., private nurse, Washington, D. C.
Coates, Nana E., Battle Creek, Mich.
Curtis, Minnie M., private nurse, Marietta, Ohio.
Green, Lillian C., private nurse, Washington, D. C.
Hall, Anita B., private nurse, Baltimore, Md.
Hankle, Areatha B. (Mrs. Bailey), Washington, D. C.
Johnson, Lillian A., private nurse, Poughkeepsie, N. Y.
Lewis, Charlotte M., private nurse, Atlanta, Ga.
Parker, Mary E., private nurse, Williamsport, Pa.
Sheppard, Emma D., private nurse, Meyersdale, Pa.
Smith, Annie M., private nurse, Jacksonville, Fla.
Spears, Lillian, private nurse, Providence, R. I.
Wainwright, Melinda E., Charlestown, W. Va.

Very respectfully,

W. A. Warfield,
Surgeon in Chief.

The Secretary of the Interior.

REPORT OF THE PRESIDENT OF HOWARD UNIVERSITY.

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TERM EXPIRES 1913.

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The School of Theology: ISAAC CLARK, A. M., D. D., *Dean.**
The School of Medicine: EDWARD A. BALLOCH, A. M., M. D., *Dean.*
The School of Law: BENJAMIN F. LEIGHTON, LL. D., *Dean.*
The Commercial College: GEORGE WM. COOK, A. M., LL. M., *Dean.*
The Academy: GEORGE J. CUMMINGS, A. M., *Dean.*
The School of Manual Arts and Applied Sciences: PERRY B. PERKINS, A. M., Ph. D., *Acting Director.*

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* Sustained entirely by endowments and special gifts. No doctrinal tests required.

REPORT OF THE PRESIDENT OF HOWARD UNIVERSITY.

HOWARD UNIVERSITY,
Washington, D. C., July 15, 1910.

SIR: I have the honor to submit for Howard University the following report, showing "the condition of the institution on the 1st day of July, 1910, embracing therein the number of pupils received and discharged or leaving the same for any cause during the year and the number remaining; also the branches of knowledge and industry taught, and the progress made therein." The report of the treasurer attached shows "the receipts of the institution and from what sources, and its disbursements and for what objects."

Howard University was founded in 1867 under the Freedmen's Bureau. The original farm purchased for the site, together with the buildings, is now surrounded by the city, and the grounds and buildings of the university are valued at over $1,000,000. The university has sent out over 2,500 graduates from the several departments, who have made an honorable record for usefulness and large service among their people.

The enrollment for the past year has been 1,252. The international character of the institution may be judged from the fact that these students come from 35 States and 12 foreign countries—from Porto Rico, 8; Africa, 4; British West Indies, 85; Cuba, 7; Republic of Panama, 3; South America, 3; Liberia, 2; British Guiana, 5; and from Dutch Guiana, India, and Santo Domingo, 1 each. After the successful completion of the courses laid down in the catalogue, 163 students were graduated as per statement under each department.

Howard University is the only institution where the nation directly touches the education of the negro. While millions of dollars have been appropriated for the education of Indians and the Eskimos of Alaska, the appropriations to this university have been comparatively small, although it has to do with the uplifting of ten millions of negroes on whom have been placed the duties and responsibilities of citizenship.

President Taft, in an address during the past year, made a clear statement as to the great need of an institution of university grade, providing for the training of the teachers, physicians, and the intellectual, moral, and industrial leaders and helpers of the negro race. Emphasis is given to his words by the fact that this is the only institution in America offering both the higher and professional training for the negro race with adequate faculties and equipment. These are here made possible by the help of the Government. While some state institutions for colored people, of normal and preparatory grade, are maintained in the South, yet the appropriations for the same are generally limited, and mostly from the Morrill fund.

President Taft, in his address at the laying of the corner stone of the Carnegie Library at Howard University, said:

> This institution here is the partial repayment of a debt—only partial—to a race to which the Government and the people of the United States are eternally

indebted. We are free from any embarrassment with respect to carrying out the obligation, and it is fitting that the Government of the United States should assume the obligation of the establishment and maintenance of a first-class university for the education of colored men. It is necessary for the success of the colored race that there be among them leaders of that race fitted by university education for that leadership. The opportunity that there is for educated colored men to aid their race in the struggle before them for economic success and the maintenance of themselves as worthy and valuable members of the community, the opportunity that there is for university men among men to assist in that movement, I say is very great indeed.

Everything that I can do as an Executive in the way of helping along this university I expect to do. I expect to do it because I believe it is a debt of the people of the United States, it is an obligation of the Government of the United States, and it is money constitutionally applied to that which shall work out in the end the solution of one of the great problems that God has put upon the people of the United States.

THE STUDENT BODY.

The character, earnestness, and good order of the student body is to be most highly commended. Under the careful supervision of the several deans, with their assistants, cases requiring extreme discipline or expulsion have been rare. The past year has made a new record in this respect. When it is considered that there is a body of over 1,250 students in attendance, representing 35 States and 11 outside countries; that there is dormitory accommodation on the campus for less than one-third of the student body; that therefore many are required to live in the heart of a great city, the fact that in the four years of this administration only one arrest, and that for a minor offense that was dismissed, has occurred, furnishes a tribute to the serious purpose and earnest, high-minded character of this student body that is unusual.

More than four-fifths of the young men of the student body are self-supporting, in whole or in part. They make their way by vacation work, and many by employment in the homes and public buildings of the city. Numerous commendations and few complaints from employers reach the office. Under the supervision of a single janitor all the buildings on the campus are cared for by student labor. The amount of aid funds for students is a tithe of the amount available in other institutions of this character. However, this reliance on themselves for support and maintenance throughout their university courses is developing in this great student body self-respecting, self-reliant men and women who are to go forth as an example and inspiration to the people among whom they labor as the preachers, teachers, doctors, lawyers, and the industrial and civil leaders of a race.

While only a moderate incidental fee is charged in the academic departments, yet in the school of medicine for the past two years the cash receipts from tuition alone, which largely maintains this school, have been over $55,000. The demand for graduates, especially in the professions of teaching medicine, dentistry, and pharmacy, is far beyond the supply.

COURSES OF STUDY.

After long and careful consideration, a modification has been made in the courses of study in the college of liberal arts. For some years a rather free system of electives, in line with that which obtains in other institutions, has been allowed throughout the college course. A return has now been made to required group courses, with a more limited system of electives, especially in the freshman and sophomore years. In view of the increased equipment in the sciences, and the enlargement of the faculty of science which in the past three years has been increased from three to six professors and instructors, besides assistants, additional courses have been offered. Both courses lead to the degree of A. B.

SCHOLASTIC WORK.

The year has been one of unexampled harmony, earnestness, and high devotion to the work, both on the part of faculty and students. Not a single event has occurred to mar the spirit of good will and harmony that has prevailed throughout the several departments in the university. The marked advance in the quality of work being done by the several faculties is evident. The high level of work maintained marks an era in the history of the university. The standards of entrance have been raised, both in the academic and professional departments. Methods in examinations have been stiffened. Requirements in class work have been advanced.

It is not surprising, therefore, to those who have marked the advance in the equipment and scholastic work in the school of medicine that after a rigid examination under the Carnegie Foundation for the Advancement of Teaching by their representative, who has examined into the work of all the medical schools of the nation, the school of medicine of Howard University receives high commendation as an institution rendering a distinct mission, and one that measures up to the requirements of the new standards in medical education. It is gratifying also to state that the Carnegie Foundation for the Advancement of Teaching recently made a careful scrutiny of entrance requirements and scholastic work in the school of liberal arts. The outcome is a report that highly commends the standards of entrance and methods in the collegiate work in the university.

NEW BUILDINGS, EQUIPMENT, AND PROGRESS.

The past year has been one of unusual expansion and growth. The Carnegie Library, the corner stone of which was laid last year by the President, was dedicated last April, with addresses by President Taft, Mr. Andrew Carnegie, and Mr. Herbert Putnam, Librarian of Congress. The new science hall has been built and equipped at a cost of $90,000, offering for the first time in the educational life of the negro race a well-equipped building and facilities for the modern sciences. A new central steam-heating, electric-lighting, and power plant is now provided for, and work on this plant and on the new hall of manual arts and industries will begin in the early fall.

This enlarged equipment is made necessary by the growth in attendance. The correspondence indicates that the entering freshman class for 1910–11 will number about 150, as compared with an enrollment of less than 75 in the four classes of the college department four years ago. This increase is the result of a general awakening among the colored people, looking to a more thorough equipment of those who are to go forth as the teachers and leaders of a rising race.

HALL OF MANUAL ARTS AND INDUSTRIES.

The sundry civil act approved June 25, 1910, appropriates $23,000 for an addition to the hall of manual arts. This addition is required for meeting the needs of the departments already organized and to provide for the work in civil, electrical, and mechanical engineering which it is proposed to inaugurate as soon as funds will justify.

Inasmuch as there is no institution for colored youth in the South that provides for advanced work in the applied sciences, and inasmuch as the colored people are rapidly advancing in the founding of towns, the organizing of industrial institutions, and in a general forward movement along industrial lines, provision for the equipment of men for leadership in these branches would seem to be of vital importance. It is expected that during the coming year some work will be done in electrical engineering in the new science hall, a room having been set apart and provision having been partially made for this line of work.

PROPOSED EXTENSION OF VERMONT AVENUE.

It is gratifying to report progress on the proposed extension of Vermont avenue. The bill prepared by the Commissioners of the District for the extension of Barry place from Georgia avenue through to McMillan Park has already passed the Senate and a favorable report has been made by the subcommittee of the House. The commissioners have in view the extension of Vermont avenue to meet the opening of Barry place next year. Instead therefore of the university being approached through a side street, this extension will carry out the original design of the founders in fronting the main hall and the new south quadrangle of buildings now forming, on a great avenue, stretching from the White House directly through to the great system of parks adjoining us, including the Soldiers' Home and the Catholic University, embracing nearly 1,000 acres. When the proposed medical buildings abutting on the Freedmen's Hospital and facing the new driveway are completed, this will give to the university an impressive quadrangle directly connected with the heart of the city both through Vermont and Florida avenues.

SCHOOL OF AGRICULTURE.

It is unfortunate that the cutting down of appropriations several years ago led to the enforced dropping of regular instruction in agriculture. I therefore again would call attention to the vital importance of practical instruction in the science of agriculture. With a view to the possible opening of such a department, the lot north of Clark Hall has now been secured, which gives to the university a half block, in addition to space on the adjoining campus, for practical instruction in agriculture. The need of such a department is emphasized by the following facts:

Nearly 85 per cent of the colored people are engaged in agricultural pursuits. Coming out from slavery, where initiative and intelligence in agricultural work could be little cultivated, the marvel is that the negro farmer has made even such progress as he has. If he could have had systematic supervision and intelligent direction by teachers trained in the modern science of agriculture, he would have added untold millions to the resources of the South and of the nation.

The great need of agricultural teaching in the common schools and academies of the South, in farmers' institutes, and through simple literature adapted to the needs of the people is now recognized as never before. If as the result of increased instruction in agriculture there could be a small percentage of increase in the production of cotton and diversified crops, tens of millions would be added to the wealth of the South.

In view of these facts, it is anomalous that there is not a single agricultural school of college grade for colored people in the nation. Under the Morrill Act a number of schools of normal and preparatory grade have been established. An imperative need is a high-grade agricultural school where the best-equipped and broad-minded young men of the negro race can be trained as teachers and leaders of their people in agricultural work. Such men are needed to teach agriculture in the numerous colored schools of the South. As lecturers and demonstrators at farmers' institutes their work would be of untold value. The improvement already made in sections that have had this supervision and instruction emphasizes the value and importance of such training. An agricultural department in connection with Howard University would turn the thought and plans of a large number of the best-equipped young colored men toward agriculture as a life work. With our well-equipped science and manual-training departments a limited appropriation would provide for effective training in agriculture.

In view of the urgent need of an agricultural department, it is hoped that some provision either under the Morrill Act or through special appropriation shall be made for thorough-going instruction in agriculture in the university. The proximity of the Department of Agriculture and the sympathy of these officers with such work would make adequate provision for such work at limited cost.

REPORT OF TREASURER.

The detailed report of the treasurer shows a small balance. It has only been by the most rigid economy and the keeping of many salaries at a low figure that a deficit has been avoided. The increased cash income from close collection of incidental and other fees has kept the treasury from debt.

The new system of bookkeeping introduced by an expert accountant has been followed, and the books of the institution have now, after rigid and detailed scrutiny by the expert accountant employed, received commendation.

The work of the secretary and business manager in the general oversight of bills, improvements, repairs, etc., has justified the division of the work of secretary and treasurer. The work of the entire office, supplied as it now is with modern equipment, is worthy of commendation.

NEEDS.

One of the pressing needs of the university is the erection of two commodious and comfortably equipped dormitories. Out of a body of more than 1,250 students not over one-fourth can be provided for in our present dormitories, although rooms originally designed for two students are crowded with three or four students. An urgent necessity is a separate dormitory for the rapidly growing body of college students. The earnest plea of the president for such a building appealed strongly to the Secretary of the Interior, but the limitation imposed on appropriations for the year made its inclusion in the estimates for the year impracticable.

An amphitheater that will provide for the ever-increasing audiences that throng the public exercises of the university is an immediate and pressing necessity. Again and again throngs of people (half as large as the memorial chapel accommodates) have been turned away. To meet this need the open-air amphitheater has been provided, but the uncertain state of the weather renders this available only on few occasions.

THE SCHOOL OF MEDICINE.

The school of medicine was chartered by act of Congress March 2, 1867. It includes the medical, dental, and pharmaceutic colleges, and, in conformity with the spirit of the organic law of the university, is open to all persons without regard to sex or race who are qualified by good moral character, age, and required preparation. The segregation of the races that obtains, especially in the South, is now making the colored physicians the determining factor as relates to the health, vitality, and industrial efficiency of 10,000,000 people. The death rate among colored people is now nearly double that among the white people, and from tuberculosis, the scourge of the race, three times as great. Tuberculosis is infectious. This scourge must be checked through the work of thoroughly trained physicians among all the people, else, through the inevitable contact of the races, conditions, especially in the south, will menace the health and vitality of the nation.

The courses have been lengthened to four years, and the sessions now extend from October 1 to June 1. The courses of study cover the following subjects: Anatomy, physiology, histology, materia medica, therapeutics, electro-therapeutics, general chemistry, organic chemistry, toxicology, obstetrics, embryology, practice of medicine, surgery, minor surgery, hygiene, pathology, bacteriology, gynecology, pediatrics, ophthalmology, otology, dermatology, laryngology, rhinology, physical diagnosis, and medical jurisprudence. The curriculum in the dental college comprises anatomy, physiology, histology, materia medica, therapeutics, chemistry, toxicology, metallurgy, oral surgery, operative and prosthetic dentistry, dental technic, pathology, bacteriology, hygiene, and medical jurisprudence. The curriculum in pharmacy comprises chemistry, toxicology, botany, materia medica, therapeutics, pharmacy, microscopy, bacteriology, urinalysis, and physiology.

The report of the Carnegie Foundation for the Advancement of Teaching on the medical schools of the nation furnishes a strong tribute to the breadth and efficiency of the work done in the school of medicine. The report is as follows:

> *Howard University Medical College:* Organized 1869. Integral part of Howard University.
>
> *Entrance requirement:* High school or equivalent (now advanced to include one year of college work in chemistry, biology, physics, and a modern language).

Attendance: Two hundred and five (not including students in dentistry and pharmacy), most of them working their way through. The students are practically all colored.

Faculty: Numbers 52, 22 being professors.

Resources: The school budget calls for $40,000, of which $26,000 is supplied by student fees. Though the school has been changed from a night to a day school the fees increased from $80 to $100, and the admission requirements stiffened, the attendance has nevertheless increased.

Laboratory facilities: The laboratories provide adequate facilities in anatomy, pathology, histology, bacteriology, and chemistry. There is no museum.

Clinical facilities: Clinical facilities are provided in the new, thoroughly modern and adequate government hospital, of 278 free beds, with its dispensary, closely identified with the medical school. A pavilion for contagious diseases is along lacking.

Of the medical schools in Washington, Howard University has a distinct mission—that of training the negro physician—and an assured future. The Government has to some extent been the patron of the institution, and has done its medical department an incalculably great service by the erection of the Freedmen's Hospital. Sound policy—educational as well as philantropic—recommends that this hospital be made a more intimate part of Howard University so that its students may profit to the utmost by its clinical opportunities. Its usefulness as a hospital in its immediate vicinity will be thereby increased; and its service to the colored race at large will be augmented to the extent that it is used to educate their future physicians.

The health of both races is involved in the thorough training of these physicians who are to mold the physical life of ten millions of their people.

Students in attendance in the school of medicine.

Seniors	39	Senior pharmaceutic	12
Juniors	42	Middle year pharmaceutic	21
Sophomores	62	First year pharmaceutic	28
Freshmen	67	Special students	10
Senior dental	20	Post graduates	
Middle dental	24		
First year dental	45	Total	370

Of these, 28 received the degree of M. D., 16 received the degree of D. D. S., and 9 received the degree of Phar. D.

THE SCHOOL OF LAW.

This is the only school of law in the nation with adequate faculty and equipment, open especially to the colored race. The school is under the direction of a faculty of judicial and able men. Its courses of study are broad and practical. It aims to send out well-equipped men who shall be able, in a wise and sympathetic way, to direct the people who may seek their counsel. The advancement of the negro race in their holdings of property in the towns as well as in the country districts, and in the establishment of commercial, banking, manufacturing, and other enterprises, opens broad fields of useful service to the graduates of this school. The subjects taught and the methods of instruction are similar to those of modern schools of law.

Students in attendance in the school of law.

Senior	25
Middlers	25
Juniors	51
Specials	9
Total	110

Of these, 22 received the degree of bachelor of laws.

THE SCHOOL OF THEOLOGY.

The school of theology is supported in no degree by Congress, but through endowment and special gifts. It requires no doctrinal tests, is interdenominational, and welcomes all who are preparing for greater efficiency in moral and religious work.

The branches taught are the Scriptures in the original, the English Bible, biblical history and antiquities, systematic theology, church history, homiletics, Christian missions, pastoral theology, moral philosophy, natural theology, evidences of Christianity, elocution, rhetoric, and vocal music. There are three courses—a classical and an English day course and a night English course. Only those in the classical course study the Scriptures in the original.

Various denominations are represented among the teachers and students, and all work in harmony. Three teachers give all their time to the work, and two part of the time.

Students in attendance in the school of theology.

Seniors	9
Middlers	15
Juniors	15
Specials	7
Unclassified	15
Post graduates	2
	63
Evening institute:	
Fourth year	8
Third year	14
Second year	8
First year	8
Post graduate	1
	39
Total	102

· Of these, 4 received the degree of bachelor of divinity, 4 received diplomas, and 4 received testimonials.

THE SCHOOL OF LIBERAL ARTS.

The importance of such a school as this, offering the instruction of strong faculties and the help of well-equipped laboratories and facilities for thorough work in the liberal arts and sciences, is indicated by the fact that during the last forty years an average of only 75 regular college graduates have been sent forth annually for teaching and leadership among the colored people. The number of students in the college courses in Howard University is greater than the combined enrollment of the college students in all other colored schools in the nation.

The faculty of the school of liberal arts consists of the officers of instruction of the college of arts and sciences, and the teachers' college, whose work is of collegiate grade. Applicants for admission to the freshman class must present at least 15 units, the same entrance requirements as those of the leading colleges of the country. By a unit of secondary work is meant a course of study of one year's duration with recitations of not less than forty-five minutes four times a week for a term of not less than thirty-six weeks. All periods in the several departments of Howard University are sixty minutes.

List of entrance units from which fifteen units may be presented.

English	3	Latin	2, 3, or 4
Mathematics	2, 2½, or 3	German	1 or 2
History	1, 2, or 3	French	1 or 2
Physics	1	Physical or commercial geography	½ or 1
Chemistry	1	Civics	½
Biology	1		
Greek	1 or 2		

THE COLLEGE OF ARTS AND SCIENCES.

The college of arts and sciences is the department of the university specifically devoted to the pursuit of liberal studies. In facilities and appliances of instruction, in extent and variety of its courses, and in thoroughness and efficiency of teaching, this department is keeping abreast of the approved standards in the collegiate world.

COURSES OF INSTRUCTION.

There are 13 chairs whose courses cover the usual branches of the modern college. The programme of study includes courses in astronomy, Bible, botany, chemistry, commercial geography, commercial law, economics, English language, English literature, ethics, French, geology, German, Greek, history, international law, Latin, logic, mathematics, pedagogy, philosophy, physics, political economy, psychology, sociology, Spanish, and zoology.

These courses are divided into (1) the arts group and (2) the science group. The science group has been arranged to meet the needs of those whose special tastes lie in this field as well as those looking forward to the pursuit of medicine, engineering, agriculture, and science teaching.

Students in attendance in the college of arts and sciences.

Seniors	23
Juniors	30
Sophomores	38
Freshmen	53
Special students	4
Total	148

Of these, 21 received the degree of A. B.

THE TEACHERS' COLLEGE.

This college is the department for the study of educational science and the training of teachers. The purpose of the college is to afford opportunity, both theoretical and practical, for the training of teachers of both sexes for elementary and secondary schools, and by instruction and direction to help those who desire to pursue studies and investigations in the science of education.

The work aims (1) to acquaint the students with those principles and practices of education which have changed the methods of secular schools and placed them upon a simple and more effective basis; (2) to lay broad culture in the student himself; and (3) to create a spirit of enthusiastic devotion to the highest of all work—the instruction of the child. The practice school is the laboratory of the department. Members of the senior class give instruction one year as a part of their required training.

The following subjects are taught: Teachers' course in English, physiology, zoology, physiography, physics, nature study, history, gymnastics, Bible, elocution, psychology (elementary and descriptive), history of pedagogy, history of philosophy, ethics, philosophy of education, methods of teaching, and kindergarten methods.

The junior class has enjoyed a course in general culture, including reviews of popular works and discussions of current topics.

Students in attendance in the teachers' college.

Seniors	12
Juniors	5
Sophomores	8
Freshmen and first year	29
Special students	36
Graduate student	1
Total	91

Of these, 6 received the degree of A. B., 1 received the degree of Pd. B., and 5 received diplomas of graduation.

THE SCHOOL OF MANUAL ARTS.

The department of manual arts is closely affiliated with the teachers' college and the academy in order to serve the double purpose of giving instruction in the manual arts and also of training teachers competent to teach manual training in the graded and secondary schools. The demand for teachers who can give instruction in manual training, domestic science, and the domestic arts, in addition to academic subjects, is more and more urgent. By a proper correlation of the industrial and academic work the design is to make this department of the university of much more value to the people whom Howard University must equip and elevate.

The subjects taught are free-hand and mechanical drawing, woodwork, sheet-metal work, printing, sewing, cooking, weaving, basketry, garment making, millinery, and cookery. The courses are open to all students of the university. The enrollment is as follows:

Printing	21
Domestic arts	65
Woodwork	85
Drawing	111
Domestic science	60
Total	342

THE ACADEMY (PREPARATORY DEPARTMENT).

The academy furnishes a broad and thorough preparatory course, fitting for the college, such as is offered in the best academies of the country. The course covers four years of study. In the junior year the subjects taught are: English composition, elementary rhetoric, ancient history, introductory Latin, the Bible, music, drawing, physiology, and manual training four hours a week. In the submiddle year: English history, English classics, physical geography, geometry, French or German, the Bible, and manual training, such as carpentry, printing, etc. In the middle year: Physics, chemistry, algebra, English classics, essays, Latin, Greek, French or German. In the senior year: The English classics, mathematics, Latin, Greek, German or French, the Bible as literature, essays, and discussions during the year.

Students in attendance in academy.

Seniors	35
Middlers	45
Submiddlers	90
Juniors	155
Special students	15
Total	340

Of these, 32 received certificates of graduation.

THE COMMERCIAL COLLEGE.

This department offers a business course and English high school education combined. In view of the rapid agricultural, commercial, and industrial advancement of the negro race in the acquiring of farms, building of towns, and the opening of insurance offices, banking houses, and commercial enterprises, the demand for young men and women who have adequate business training is urgent. The commercial college offers courses in bookkeeping, commercial law, history, civics, etc. Special emphasis is placed on reading and spelling, grammar, and arithmetic. The department maintains special classes in typewriting, shorthand, and English grammar. All students in the first-year class are required to spend four hours a week in the industrial department. The instruction is designed to fit pupils for intelligent citizenship and practical business.

The following branches are taught in the various classes: Higher English, mathematics, stenography and typewriting, physics, bookkeeping, political economy, civics, commercial law, commercial geography, sociology, zoology, physiology, statistics, and history of commerce.

Students in attendance in the commercial college.

First-year class	12
Second-year class	23
Third-year class	13
Fourth-year class	10
Special students	23
Post graduates	1
Total	82

Of these, 9 received diplomas.

Very respectfully,

WILBUR P. THIRKIELD, *President.*

The SECRETARY OF THE INTERIOR.

APPENDIX.

FINANCIAL REPORT.

I have the honor to add the following statement from the report of treasurer:

Expenditure of government appropriation for maintenance, fiscal year 1910.

General officers:		
President	$4,400.00	
Secretary, in part	1,100.50	
Treasurer, in part	1,025.67	
Librarian and two assistants, in part	733.33	
Preceptress, in part	495.00	
		$7,754.50
College of arts and sciences:		
Dean and professor of mathematics	1,760.00	
Assistant professor of chemistry	1,150.00	
One professor of biology and geology	1,650.00	
One professor of Greek and ethics	500.00	
One professor of history	1,650.00	
One professor of English literature	1,650.00	
One professor of Latin	1,650.00	
One professor of physics, in part	540.00	
One acting professor of German	700.00	
One instructor in French	1,375.00	
Assistant professor in biology	1,000.00	
One professor of social science, in part	1,095.00	
		14.720.00
Teacher's college:		
Dean and professor of pedagogy	2,160.00	
One instructor in mathematics and science	1,500.00	
One instructor in methods, pedagogy, and nature study	1,500.00	
One director of training school	1,100.00	
One instructor in English language and literature	850.00	
One director in kindergarten training department	950.00	
One director of music, in part	810.00	
One assistant director in music, in part	360.00	
		9,230.00
Academy:		
One dean and professor of Latin and Greek	1,760.00	
One professor of history and mathematics	1,250.00	
One instructor in English, rhetoric, and history	1,100.00	
One instructor in modern languages	600.00	
One instructor in Latin and Greek	750.00	
One instructor in physics	600.00	
		6,060.00
Commercial college:		
One dean and professor of commercial law, in part	1,100.50	
One instructor in history and civics	715.00	
One instructor in shorthand and typewriting	700.00	
One instructor in bookkeeping	720.00	
Two instructors in English, in part	700.00	
		3,935.50

The school of law:		
Dean of law department, lecturer on contracts, constitutional and statutory laws	$1,300.00	
One lecturer on pleading and practice	1,300.00	
One lecturer on torts, crimes, and misdemeanors and corporations	1,500.00	
One lecturer on evidence, personal property; also librarian	1,500.00	
One lecturer on domestic relations and commercial paper	650.00	
One lecturer on commercial law and instructor in pleading and practice	700.00	
One lecturer on the laws of real property	350.00	
		$7,300.00
		49,000.00

Expenditure of appropriation for the school of manual arts and applied sciences.

Director	$1,600.00
One instructor in woodwork	1,200.00
One instructor in domestic arts	1,100.00
One instructor in domestic science	1,050.00
One instructor in printing	800.00
One instructor in drawing	700.00
Tools, materials, fuel, etc	2,550.00
	9,000.00

Expenditure of appropriation for natural-history studies and laboratories.

Chemical laboratory	$133.73
Biological laboratory	47.14
Physics laboratory	19.13
	200.00

Expenditure of appropriation for repair of buildings and improvement of grounds.

Repairs to buildings	$2,736.80
Improvement of grounds	263.20
	3,000.00

Expenditure of appropriation for books, etc.

Shelving and equipment	$1,812.69
Academic library books, etc	837.95
Law library books, etc	349.36
	3,000.00

Expenditure of appropriation for fuel and light.

Coal and wood	$2,551.93
Gas and electricity	448.07
	3,000.00

Expenditure of appropriation for school of medicine.

Equipment and apparatus	$4,515.86
Laboratory supplies	484.14
	5,000.00

Summary of expenditure of government appropriations, fiscal year ended June 30, 1910.

	Appropriation.	Current expense accounts.	Plant fund expenditure equipment.
Disbursed through treasurer of university:			
Salaries and wages, including teachers' college	$49,000.00	$49,000.00	
Department of manual arts	9,000.00	7,477.40	$1,522.60
For library equipment, books, etc	3,000.00	472.21	2,527.79
Improvement of grounds and repairs to buildings	3,000.00	3,000.00	
School of medicine, equipment, and laboratory supplies	5,000.00	484.14	4,515.86
Laboratories, apparatus, and material	200.00	200.00	
Fuel and light	3,000.00	3,000.00	
Total	72,200.00	63,633.75	8,566.25
Disbursed by chief disbursing clerk, Interior Department:			
Science building	83,000.00		83,000.00
Science building equipment	7,000.00		7,000.00
Total credited permanent fund account			98,566.25
Total credited current fund		63,633.75	63,633.75
Total appropriation	162,200.00		260,766.25

General summaries for year ended June 30, 1910, from all sources.

CURRENT FUND.

Total income for current expenditure for year	$128,142.99
Total current expenditure for year	119,574.30
Net surplus of current fund for year	8,568.69
Expenditure for permanent plant when there was no special fund	2,180.08
Net increase of current fund	[a] 6,388.61

PERMANENT FUND.

Total income for increase of educational plant	146,202.64
Total expenditure for increase of educational plant, not including amount charged current fund	146,521.88

SUMMARY OF ABOVE.

Income for all purposes	274,345.63
Expenditure for all purposes	268,310.19

SOURCES OF INCOME.

Donations (including gift for Carnegie Library)	50,368.81
United States Government appropriation	162,200.00
Income of endowments	18,264.36
From students	44,069.69
Miscellaneous	625.58
Total	275,528.44
Less scholarships and gratuities to students	1,182.81
Total income as above	274,345.63

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[a] $3,602.18 of this increase is in debts owed by students, mostly by medical students, for tuition, $2,434.07 in reduction of amount due creditors. There was a decrease instead of an increase of cash.

Balance sheet June 30, 1910.

CURRENT FUND.

Assets:	
Accounts receivable (mostly debts of medical students for tuition)	$14,140.47
Prepaid insurance	1,217.35
Supplies on hand as per inventories	933.85
Total current assets	16,291.67
Liabilities:	
Notes payable	1,210.00
Accounts payable	360.41
Overdraft of investment cash, shown below	195.21
Total current liabilities	1,765.62
Surplus of current assets	14,526.05
Total	16,291.67

PERMANENT FUND.

Investment assets:		
Securities	$191,020.00	
Productive real estate	94,534.63	
		$285,554.63
Cash in banks for investments		5,375.98
Unproductive land other than plant		115,730.68
Loans to medical students, and cash in hands of treasurer-secretary school of medicine, part of loan fund		420.00
Total investment assets		407,081.29
Balance shown as a liability above		195.21
Total		407,276.50
Endowment funds, etc.:		
Mortgage against investments		8,000.00
Endowments capital accounts—		
Funds for general purposes	$165,972.42	
Funds for designated purposes	115,239.79	
		281,212.21
Land fund (corresponding to unproductive land other than plant)		115,730.68
Medical students' loan aid fund		1,166.10
Unexpended balance of permanent plant fund		1,167.51
Total		407,276.50

EDUCATIONAL PLANT, LAND, BUILDING, AND EQUIPMENT.

At beginning of year including revaluation	$1,082,897.62
Added during year	148,701.96
Total educational plant	1,231,599.58
Educational plant, capital fund account	1,231,599.58

Income and expenditure, current fund, fiscal year ended June 30, 1910.

INCOME.

Income from students:			
College of arts and sciences, teachers' college, commercial college, and academy: Incidental and matriculation fees		$6,037.00	
College of arts and sciences, and academy laboratory fees		408.00	
School of theology: Incidental and matriculation fees		509.00	
School of law: Tuition, matriculation, and graduation fees		2,649.40	
School of medicine: Tuition, matriculation, graduation, and laboratory fees		33,063.76	
Library fees		925.36	
For dormitories, net		567.27	
For bookstore, net		53.81	
Total of above		44,213.60	
Less loss on dining hall	$16.96		
Less loss on instruction in music	126.95		
		143.91	
			$44,069.69
Income from investments:			
Endowments for general purposes		10,431.12	
Endowments for designated purposes		7,833.24	
			18,264.36
Income from United States appropriation: Appropriation for current expenses			63,633.75
Gifts for current expenses:			
For general purposes		$430.00	
For designated purposes—			
For school of theology		2,000.00	
For students aid		300.00	
For hymnals		5.00	
			2,735.00
Income from other sources:			
Chapel collections	$303.05		
Less collection for Y. M. C. A	28.34		
		274.71	
Interest on current funds, less interest payments		26.38	
Sale of old materials, etc		213.57	
Dental infirmary receipts		108.34	
			623.00
Total of above			129,325.80
Less amount given students as scholarships and gratuities			1,182.81
Total income available for current expenditures			128,142.99

EXPENDITURE.

Departmental expenses:		
College of arts and sciences, teacher's college, commercial college, and academy	$40,109.47	
School of manual arts and applied sciences	8,026.51	
School of theology	5,497.46	
School of medicine	31,799.82	
School of law	8,185.52	
Library	2,897.93	
		$96,516.71

Administration and general expenses:		
Salaries of officers, president, secretary, treasurer, and auditor	$6,836.00	
Salaries of assistants, stenographers, etc	3,127.68	
Heat, light, and water	417.35	
Telegraph and telephone	432.40	
Printing and stationery	712.14	
Postage	331.04	
Miscellaneous expense	766.04	
Traveling expenses	356.43	
Advertising	285.41	
Publication expense	945.93	
		$14,210.42
Maintenance of plant:		
Salaries	3,069.63	
Repairs and renewals	1,318.07	
Care and improvement of grounds	4,045.79	
Insurance	418.68	
		8,847.17
Total current expenditure		119,574.30

Income from permanent plant funds.

Donations for:		
Alumni gymnasium fund	$875.85	
Library fund	150.00	
Carnegie Library building fund [a]	46,500.00	
History department equipment fund	99.20	
Howard memorial fund	8.76	
		$47,633.81
Appropriation of the United States Government for increase of educational plant and equipment:		
Science hall building	83,000.00	
Science hall equipment	7,000.00	
Manual arts department equipment	1,522.60	
Books for Carnegie Library	391.24	
Books for law library	323.86	
School of medicine equipment	4,515.86	
Carnegie Library equipment	1,812.69	
		98,566.25
Interest added to medical building fund		2.58
Total income for fiscal year		146,202.64
Unexpended balances brought forward:		
From previous fiscal year, viz—		
Alumni gymnasium fund	$51.00	
Library fund	1,372.00	
Carnegie Library building fund	12.25	
School of medicine building fund	51.50	
		1,486.75
Total		147,689.39

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[a] Mr. Andrew Carnegie's entire gift for this fund was $50,000, partly received in previous year.

List of permanent funds with income, 1909–10.

	For designated purposes.	
	Principal.	Income.
For scholarship and aid:		
General scholarship and aid fund	$19,511.32	$2,246.82
J. P. Thompson fund	260.00	13.00
Francis B. Schoals fund	6,000.00	300.00
Frederick Douglass fund	8,503.11	425.15
T. K. McLean fund	1,000.00	50.00
Orange Valley fund	1,000.00	50.00
Horace Ford fund	1,000.00	50.00
J. W. Alvord fund	1,000.00	50.00
Martha Spaulding fund	8,828.26	441.41
Thomas C. Riley fund	1,000.00	50.00
Mary B. Patton fund	1,200.00	60.00
William W. Patton fund	1,000.00	50.00
William E. Dodge fund	5,000.00	250.00
School of theology alumni fund	40.00	2.00
Total	55,342.69	4,038.38
For professorships:		
Thaddeus Stevens fund	2,200.00	110.00
Law professorship fund	10,010.00	500.50
Grebel fund	2,450.00	122.50
Whittier fund	875.00	43.75
Valeria G. Stone fund	40,000.00	2,800.00
William W. Patton memorial fund	12.10	.61
Caroline Patten Hatch fund	200.00	10.00
Alumni professorship fund	25.00	1.25
Lincoln memorial fund	700.00	35.00
Edward Smith fund	500.00	25.00
Hartford reading-room fund	425.00	21.25
Samuel C. Pomeroy fund	2,500.00	125.00
Total for designated purposes	115,239.79	7,833.24
General endowment	165,972.42	10,431.12
Total	281,212.21	18,264.36

The changes from the last report result from the revaluation (some securities being now put at their minimum market value instead of at par as before), the addition of the productive real estate to the endowment, the taking out of the medical aid and building funds as not in nature permanent, and the inclusion in the special funds of some which were before carried in the general endowment.

Certified by—
DANIEL CRAWFORD SMITH,
Certified Public Accountant of New York.

EDWARD L. PARKS, *Treasurer.*

THE WORK AND MISSION OF HOWARD UNIVERSITY: ABSTRACTS FROM ADDRESSES.

PRESIDENT TAFT.

This university offers to the colored race what it needs and without which it can not make advancement, to wit: Colored leaders of thought in every profession in order, not that all colored men may be university men, but that there may be among the colored men university men who shall lead the whole colored race onward and upward. No race would be better off if they were all educated as university men. * * *

On the other hand, that admission is far from a concession that it is not necessary for the success of the colored race that there be among them leaders of that race fitted by university education for that leadership. There is not any likelihood, with deference to persons who occupy a different position, that either in the generosity of the General Government or in the generosity of individuals who found colored colleges and universities, there is to be such an opportunity given as is likely to lead too many colored men to acquire university education as compared with the number of colored men that there are in the community, and especially south of Mason and Dixon's line. The opportunity that there is for educated colored men to aid their race in the struggle before them for economic success and the maintenance of themselves as worthy and valuable members of the community, the opportunity that there is for university men among men to assist in that movement, I say is very great indeed.

AMBASSADOR BRYCE.

But it remains true, nevertheless, that you also want a university which gives the highest instruction, such as Howard University. For this there are two reasons:

(1) You have many colored people, and I hope will have them in increasing numbers, of exceptional gifts, for whom the highest education can and ought to be provided.

(2) As has been said by President Roosevelt, it is your duty to make the amplest provision for the education of colored men in those professions which they desire to follow for the benefit of their brethren, and which are essential for their peculiar calling.

One word about the teacher. Nothing is more important. Good teachers, earnest, upright, and themselves well taught, are perhaps the greatest need of the South. Especially where masses of colored people live isolated from other educative influences, you need to have the best men and women—active, vigorous men and women—with the best training which can be given them for the work of teaching among the African race in the South. Such men, along with the doctors, clergymen, and lawyers, will be the natural guides of the colored people. It is through them that the masses of the negro population may best be influenced for good and led upward. Everything you can do to provide the right kind of teachers in the schools will spring up and bear fruit and yield a hundredfold in those parts of the South where education is now most needed.

EX-PRESIDENT ROOSEVELT.

This institution has been devoted throughout its career to turning out men and women who should be teachers and helpers of their own people toward that higher life. * * * It is from this institution that are graduated those who will lead and teach their less fortunate fellows. Upon their leading and teaching much depends for their race and for their country.

DR. BOOKER T. WASHINGTON.

I believe the time has come when the public men of this country are going to realize the tremendous importance of this work that is being done in this medical school and that in the near future we shall have here one of the largest and best equipped of any buildings in this country. We must have that. It is the negro who touches the white family at a very vital point in the life of that white family in some respects. In other respects, there are such fundamental elements in the situation that no color line can be drawn. Filth draws no color line. Immorality draws no color line. If by reason of ignorance of the laws of health the black individual in the community has in his body the germs of consumption, inevitably that black man or black woman will carry those germs into the white family. It is impossible for that negro to handle the white man's food, to touch the white man's child day by day without the white man being just as much affected by disease as is true of the black race. For all these reasons it is very important that the white people throughout this country should realize the work that Howard University is doing in sending out these negro doctors.

REPORT OF THE SUPERINTENDENT OF THE UNITED STATES CAPITOL BUILDING AND GROUNDS.

REPORT OF THE SUPERINTENDENT OF THE UNITED STATES CAPITOL BUILDING AND GROUNDS.

Office of Superintendent,
United States Capitol Building and Grounds,
Washington, D. C., July 1, 1910.

Sir: For the fiscal year ended June 30, 1910, I have the honor to make the following report of the work done at the Capitol and other buildings under the care and supervision of this office:

THE CAPITOL.

At the Capitol the work has consisted in a number of permanent improvements, minor interior structural changes, and general repairs throughout the building, amounting to 1,631 items. The permanent improvements made consisted of the installation in the Senate wing of two new passenger elevators at the east entrance and of new marble floors, mantels, and lavatories in the cloakrooms of the Senate. Crystal chandeliers have been hung in both Senate cloakrooms and also in several committee rooms.

In the Senate restaurant very decided changes have been made, consisting of installation of new marble floors, the uniting of the two private rooms for Senators by cutting away the intervening wall and erecting an arch to support the ceiling. The restaurant was also provided with new mahogany furniture, two new counters, an additional dumb waiter, and ice box for the kitchen.

For the police force sixty-seven steel lockers have been furnished and put in place. At several of the Senate committee rooms mahogany doors have been installed. An ornamental stained glass skylight has been erected in the main lobby, gallery floor, Senate wing.

The ladies' retiring room of the House was moved to the room formerly occupied by the Committee on Foreign Affairs, and the room vacated was added to the press rooms of the House, and this room and the other press rooms were painted and the plumbing overhauled.

New cables were placed on fourteen elevators and all repaired. Necessary repairs to doors, windows, roofs, and floors have been made to the building.

Considerable wiring for electric lighting has been done, and in addition to the installation of the crystal chandeliers mentioned, chandeliers have been erected in the office of the Sergeant-at-Arms of the House, chief clerk's room, and at the entrance to the House basement floor. Electroliers were installed in the committee rooms on Naval Affairs and Pensions of the House.

The heating, lighting, and ventilating machinery was overhauled and, where needed, repairs were made.

Throughout the building the plumbing has been put in good condition and many new lavatories installed.

The committee and other rooms have been decorated, as follows:

Senate wing: Committee on Privileges and Elections, Subcommittee on Appropriations, Disposition of Useless Papers, Judiciary, restaurant, and office of the superintendent of the Capitol.

House wing: Sergeant-at-Arms's room and cashier's office and ladies' toilet.

The following have been painted or touched up:

Senate wing: Committee on Irrigation, Interstate Commerce, Enrolled Bills, Appropriations, Military Affairs, District of Columbia, Finance, Commerce, Foreign Affairs, Public Buildings and Grounds, Pensions, Library, and also the press gallery, Senate Chamber, cloak rooms, Senator Newland's room, Supreme Court chamber, corridors, three elevators, terrace corridors, Senators' toilet, stationery, and guard rooms.

House wing: Committee on Manufactures, Pensions, Foreign Affairs, and Immigration. Also the Speaker's room, library, press gallery, folding room, minority annex, lieutenants' room, stationery room, cloak rooms, corridors, document room, and terrace corridors.

CAPITOL GROUNDS.

The Capitol grounds have received proper care during the past year and necessary fertilizing, sodding, pruning, and planting done.

The terrace plantings and those in the east front of the Capitol have received due attention. The lawns about the Capitol and those at the office buildings of the Senate and House have been kept in good condition.

Necessary repairs to roadways and walks have been made and the lamp-posts, sheds, and iron railings painted.

ENGINE HOUSE AND SENATE AND HOUSE STABLES.

In the engine house new stalls and floors were built, roofs repaired and painted, and the building painted throughout.

At the Senate and House stables all necessary painting was done, and the plumbing overhauled and repaired.

COURTHOUSE, DISTRICT OF COLUMBIA.

The work at the court-house has consisted of placing new cement floors, remodeling toilets, installing new window frames and sash, painting rooms and corridors in various parts of the building, and the overhauling of the heating plant. A large amount of new steam return pipe was installed, all the plumbing was put in good condition, and a new toilet put in the cell toilet room. The old heating boilers were removed and a new high-pressure boiler installed. The necessary whitewashing was done in the east and west corridors and cell rooms in the basement story.

COURT OF CLAIMS BUILDING.

At the Court of Claims building a large section of the old roof has been removed and a new roof put in its place. The building was painted throughout and revolving doors placed at the entrance to the building. A new toilet was installed on the first floor, a lavatory was placed in the engineer's room, and tile work, marble stalls, and new doors were added to the public closet.

BOTANIC GARDEN.

At the Botanic Garden repairs were made to greenhouses, heating plant, and cement walks.

EXPENDITURES.

The expenditures for the fiscal year ended June 30, 1910, were as follows:

Expenditures for the fiscal year ended June 30, 1910.

CAPITOL BUILDING AND REPAIRS.

Pay rolls		$16,977.74
Labor vouchers		1,758.31
Machinery and ironwork		5,882.54
Brushes, sponges, soap		726.21
Lumber and millwork		1,808.73
Hardware		1,701.81
Lime, brick, cement, and sand		145.44
Paint, oil, and glass		2,320.46
Marble, stone, brick, and concrete work		4,378.80
Electric wiring, etc		60.10
Drawing materials, blueprints, etc		107.03
Hauling, expressage, telegrams, etc		83.42
Plumbing, and plumbing material		2,797.61
Elevators and repairs		1,332.06
Roofing and tin work		321.15
Painting and decorating		1,218.00
Tile and tiling		351.50
Stationery and books		72.80
Tackle, rope, and flags		119.00
Heating and ventilating		128.15
Repairs to kitchen ranges and fixtures		1,054.33
Miscellaneous		119.65
Reserved for unpaid bills		76.21
Total		43,541.05
Appropriated:		
Sundry civil act approved March 4, 1909	$30,000.00	
Deficiency act approved February 25, 1910	13,541.05	
		43,541.05

CAPITOL BUILDING AND REPAIRS, 1909–10.

Lumber and millwork	$1,200.88
Heating and ventilating	442.41
Metal fixtures and cases	1,766.67
Miscellaneous	4.20
Hauling, express, telegrams, etc	5.60
Labor vouchers	79.10
Reserved for unpaid bills	1.14
Total	3,500.00
Amount appropriated, deficiency act approved August 5, 1909	3,500.00

SENATE KITCHEN AND RESTAURANT.

Pay roll	$471.14
Brick, lime, cement, sand, etc	76.53
Lumber and millwork	254.08
Fixtures and repairs to ranges	2,764.23
Plumbing and plumbing material	200.89
Marble and marble work	264.63
Labor vouchers	254.24
Express, telegrams, etc	3.30
Repairs to floors	56.50
Traveling expenses	3.35
Ironwork	337.36
Hardware	12.58
Paint, oil, etc	8.00
Dumb waiter	293.00
Reserved for unpaid bills	.17
Total	5,000.00
Amount appropriated, deficiency bill approved August 5, 1909	5,000.00

ADDITIONAL ELEVATORS, SENATE WING.

Pay rolls	$3,702.95
Traveling expenses	17.85
Labor vouchers	2,316.19
Lumber and millwork	381.69
Electrical work and material	112.74
Hauling, expressage, telegrams, etc	16.61
Brick, lime, cement, and plaster	287.54
Ironwork	120.98
Hardware	3.62
Machinery and elevators	12,753.50
Paint, oil, etc	5.60
Tools and repairing	80.45
Elevator inclosures	6,174.36
Unexpended balance for unpaid bills	25.92
Total	26,000.00
Amount appropriated, sundry civil act approved August 5, 1909	26,000.00

LIGHTING CAPITOL GROUNDS, ETC.

Pay rolls		$39,256.87
Labor vouchers		109.25
Incandescent and arc lamps		8,096.49
Electric wire and material		2,144.57
Fixtures		3,810.40
Iron and metal work		11.75
Hauling and expressage		1.09
Hardware		64.53
Nickel plating		28.15
Electric molding		2.50
Steam pipe and fittings		178.93
Gas and electric current		48,402.73
Electric instruments and apparatus		200.43
Miscellaneous		10.62
Reserved for unpaid bills		2,181.69
Total		104,500.00
Appropriated:		
Sundry civil act approved March 4, 1909	$78,500.00	
Deficiency act approved June 25, 1910	26,000.00	
		104,500.00

IMPROVING THE CAPITOL GROUNDS.

Pay rolls	$17,839.28
Labor vouchers	147.74
Plants and sodding	1,274.08
Fertilizers	1,052.51
Tools and machinery	1,911.93
Brushes, brooms, etc	391.62
Gasoline	162.03
Brick, cement, lime, etc	20.16
Plumbing materials	255.76
Hardware	127.03
Paving and repairs	735.96
Freight and expressage	5.55
Hose and couplings	652.95
Lumber and carpenter work	100.41
Horses and carts, hire	2,577.00
Miscellaneous items	72.80
Reserved for unpaid bills	173.19
Total	27,500.00
Amount appropriated, sundry civil act approved March 4, 1909	27,500.00

ENGINE HOUSE, SENATE AND HOUSE STABLES.

Lumber	$148.00
Paint, oil, and glass	58.16
Hardware	36.42
Pay rolls	818.00
Plumbing material	28.60
Labor vouchers	351.00
Roofing and tinwork	47.88
Steel and iron work	2.94
Reserved for unpaid bills	9.00
Total	1,500.00
Amount appropriated, sundry civil act approved March 4, 1909	1,500.00

REPAIRS TO COURT-HOUSE, DISTRICT OF COLUMBIA.

Lighting fixtures		$135.00
Pay rolls		859.13
Labor vouchers		883.24
Lumber and millwork		66.25
Roofing tin and metal work		22.31
Plumbing and material		1,129.05
Brick, lime, sand, etc		4.20
Paint, oil, and glass		381.90
Marble and stone work		168.88
Hardware		8.98
Electrical work and material		150.09
Concrete floor, etc		171.60
Whitewashing and material		60.00
Repairs to boilers		1,128.25
Total		5,168.88
Appropriated:		
Sundry civil act approved March 4, 1909	$5,000.00	
Deficiency act approved June 25, 1910	168.88	
		5,168.88

REPAIRS TO COURT OF CLAIMS BUILDING.

Pay rolls	$2,821.05
Labor vouchers	1,079.89
Lumber and millwork	664.93
Glazing, paint, oil, glass, etc	800.26

Cement, lime, sand, etc		$19.87
Roof work		461.00
Hardware		16.42
Marble and tile work		155.17
Plumbing and plumbing material		1,549.62
Steel and iron work		206.80
Revolving door		684.59
Miscellaneous		26.40
Total		8,486.00
Appropriated:		
Legislative bill approved March 4, 1909	$500.00	
Sundry civil bill approved March 4, 1909	7,986.00	
		8,486.00

ADDITION TO COURT-HOUSE, WASHINGTON, D. C.

Drafting services	$12,839.47
Engineering services	2,215.00
Steel framing and iron work	11,243.97
Brick and brick work	26,424.78
Cement, sand, and cinders	8,887.60
Lumber and mill work	1,895.54
Hardware, tools, etc	2,342.04
Concrete footings, floors, etc	7,800.15
Granite and stone work	36,496.91
Excavations	3,291.70
Plumbing and plumbing material	11,452.42
Hauling, express, telegrams, and telephones	387.01
Advertising and printing	88.65
Carpenter work	3,128.74
Watchman and material clerk	3,127.51
Blueprint and material and stationery	386.51
Constructor in charge	2,325.00
Terra-cotta partitions	2,129.92
Electrical work and material	8,359.32
Plastering	17,918.79
Heating and ventilating	10,113.75
Roof and tin work	6,263.80
Sash, doors, etc	14,363.00
Electric current	382.14
Painting and material	4,687.60
Marble work	12,093.63
Miscellaneous	372.99
Reserved for outstanding contracts	22,382.06
Total	234,000.00
Appropriated deficiency bill:	
Approved May 30, 1908	50,000.00
Approved March 4, 1909	150,000.00
Approved June 25, 1910	34,000.00
	234,000.00

EXTENSION TO DISTRICT OF COLUMBIA COURT-HOUSE BUILDING FOR COURT OF APPEALS.

Work on this building has progressed so satisfactorily during the past year that it will be ready for occupancy by the court when it assembles at its fall term in October.

The court and other rooms will be properly furnished, and provision made for lighting and heating the building.

SENATE AND HOUSE OFFICE BUILDINGS.

The Senate and House office buildings being now occupied, work on the approaches and on the basement rooms has continued during the year with a view to their occupancy when Congress assembles.

The domestic charge and care of these buildings have been for the present placed under this office.

CONGRESSIONAL HEATING, LIGHTING, AND POWER PLANT.

During the past year work has continued on the construction and equipment of the apparatus and the building, and it is expected that within a short time a preliminary test will be made in lighting the Capitol and congressional buildings in anticipation of its final acceptance by the Government.

Elliott Woods,
Superintendent U. S. Capitol Building and Grounds.

The Secretary of the Interior.

REPORT OF THE ACTING SUPERINTENDENT OF THE YELLOWSTONE NATIONAL PARK.

REPORT OF THE ACTING SUPERINTENDENT OF THE YELLOWSTONE NATIONAL PARK.

OFFICE OF SUPERINTENDENT,
Yellowstone Park, Wyo., September 30, 1910.

SIR: I have the honor to submit annual report of the conditions in the park since October 15, 1909, to the present date.

The Yellowstone National Park, set aside by act of March 1, 1872 (secs. 2474 and 2475, R. S., 17 Stat., 32), is located in the States of Wyoming, Montana, and Idaho. It has an area of about 2,142,720 acres, and an average altitude of about 8,000 feet.

TRAVEL.

The season of 1910 opened on June 15, at which time the snow had entirely disappeared, and the roads were in excellent condition.

The aggregate number of persons taking the park trip during the season of 1910 was as follows:

Travel in park during season of 1910.

Yellowstone Park Transportation Company, entering via northern entrance			5,049
Monida and Yellowstone Stage Company, entering via western entrance			3,311
Others at hotels, traveling with private or government transportation, bicyclers, foot travelers, etc			21
Total making park trip with regular companies			8,381
Wylie Permanent Camping Company:			
Entering park via northern entrance	2,337		
Entering park via western entrance	2,003		
Total with Wylie Company		4,340	
Other licensees of personally conducted camping parties		2,080	
Total number camping, traveling with licensed transportation			6,420
Making park trip with private transportation as "camping parties"			3,219
Total number making tour of park			18,020
Total number making short trips with various methods of transportation			1,555
Grand total of all visitors to the park, season of 1910			19,575

During the season 5,796 tourists took the trip across Yellowstone Lake with the T. E. Hofer Boat Company. Of this number 2,635 were traveling with the Yellowstone Park Transportation Company, 1,193 with the Monida and Yellowstone Stage Company, 1,616 with the Wylie Permanent Camping Company, and the balance, 352, were traveling with licensed and private camping parties.

Travel by the different entrances.

By the main gate on the north, Gardiner Station	10,988
By the Madison River road on the west, Yellowstone Station	7,403
By the road leading from Jackson Hole on the south, Snake River Station	415
By the government road from Cody on the east, Sylvan Pass Station	767
By the Cooke road, northeast corner, Soda Butte Station	2
Total	19,575

MEANS OF TRANSPORTATION.

The Yellowstone Park Transportation Company owns 6 six-horse Concord coaches (used from Gardiner to Mammoth Hot Springs only), 87 four-horse Concord coaches, 43 surreys, 14 formation wagons, and 46 spring wagons for use in transporting tourists through the reservation, in addition to necessary baggage, express, and freight wagons, carts, buggies, etc. These require the use of 675 horses in the park.

The Monida and Yellowstone Stage Company owns 129 passenger vehicles, consisting of 56 four-horse Concord coaches and 73 surreys, for use of tourists in the park. This company had 325 horses in the park.

The Wylie Permanent Camping Company used 103 vehicles—mountain spring wagons and surreys—in transporting tourists through the park, requiring the use of 364 horses.

In addition to the above, movable camp licenses were issued covering 146 wagons and 172 saddle and pack animals, for use in connection with tourist travel in the park.

ROADS.

The following, from notes furnished by Capt. Wildurr Willing, United States Corps of Engineers, shows the work performed under his supervision:

During January and February a small amount of work was done on the Mammoth Hot Springs-Gardiner road, removing slides of earth and rock.

On March 4 a crew of 9 men with 2 teams was organized to repair washouts and remove slides on the above-mentioned road, and to surface with gravel the worst places on the road. This work was continued until the latter part of June and included surfacing the roads around Mammoth Hot Springs. These roads were in excellent condition throughout the tourist season, but at present are beginning to show the effects of the heavy freighting for the new Canyon Hotel.

On May 9 a small party was sent out to put the road from Mammoth Hot Springs to the Continental Divide, via Norris, Canyon, Lake Outlet, and Thumb, in condition for the opening of the season. The work consisted in removing large rock slides at the Virginia Cascades, cleaning the road and ditches of earth and rock slides, draining off the snow water, filling in washouts, and running the road grader over the road. Owing to the mild season this small party was able to put the road in excellent condition for the opening of the season. No delay was experienced by travel in getting over the Continental Divide on account of snow.

A small party was sent out on May 26 to open up the road from Norris to the Divide via the Fountain and Upper Basin. This work included also the west road, and was similar to that done by the above-mentioned crew.

Sprinkling around Mammoth Hot Springs was begun on June 18. The engineer department funds being exhausted, the entire system throughout the park, with the above exception, was started with Interior Department funds, and so carried until June 26, when the funds for the improvement of the park became available. In all 20 sprinklers were operated, covering 95 miles of roads. On August 25 a hard freeze occurred, breaking a number of pipes and valves, and it was decided to lay off all sprinklers except those from Gardiner to Norris. On September 6 the Mammoth Hot Springs-Norris sprinklers were discontinued.

The unsightly break in the concrete railing of the Golden Gate viaduct was repaired in June.

A small amount of repair work was done on the roads throughout the park during the season. The old road from the Canyon Hotel to the intersection with the present Canyon-Norris road was put in shape for freighting to save the main road.

A trail was constructed from Snow Pass to near the west boundary in the Gallatin Valley, and minor repairs made to the Lamar River trail.

A large crew of men have worked since July 24 in making repairs to the east road in the national forest. Up to September 3 this party had covered about 14 of the 30 miles of road, the work being well done. Numerous small bridges and culverts were built and others repaired. A large amount of rock and earth work was necessary to put the road in its present good condition.

Two parties have been at work on the south road in the national forest during the season. One has constructed a bridge over Pacific Creek and made repairs to the Buffalo Fork bridge. This party has also constructed and repaired a number of small bridges and culverts, and made general repairs to the road surface in the vicinity of Pacific Creek.

The second party has worked in the vicinity of Brooks Lake and Upper Wind River, constructing and repairing bridges and culverts and making repairs to the road surface, widening, grading, and clearing the road of rocks, etc.

On July 19 a contract was entered into with the Minneapolis Steel and Machinery Company for furnishing and erecting four steel highway bridges. The following old and dangerous wooden bridges will be replaced: Madison River bridge, by two 80-foot steel spans; Gibbon River bridge (5 miles from Norris), by two 50-foot steel spans; Heron Creek bridge, by an 80-foot steel arch; Obsidian Creek bridge, by a 36-foot plate girder. This work is under way, and all bridges should be completed before the roads are closed for the winter.

Numerous minor repairs have been made to old bridges and culverts throughout the park during the summer.

Material is on the ground to construct a concrete wall at the dangerous bend in Gardiner River in the canyon between Mammoth

Hot Springs and Gardiner, and it is hoped this wall can be completed this season.

The lawns at Mammoth Hot Springs were maintained throughout the summer.

FISH.

The fish hatchery located on Yellowstone Lake near the Thumb was operated as usual, under charge of Mr. D. C. Booth, superintendent of the United States hatchery at Spearfish, S. Dak. Mr. Booth reports that the total collection of eggs of the black-spotted trout at this subhatchery during the past summer amounted to 6,500,000. As the Yellowstone Lake Basin is already well stocked, but 75,000 fry were planted there, the balance of the eggs after sufficiently well eyed being packed in special refrigerator cases and forwarded by express and special messenger to various places throughout the United States, where they were planted in public waters that were without trout or in need of restocking.

The hatchery at Spearfish furnished the following for the park: 50,600 eastern brook trout, of which 21,600 were planted in Glen Creek, 24,000 in Willow Creek, and 5,000 in Lava Creek, several miles above the falls; 30,000 rainbow trout, which were planted in Tower Creek.

Mr. H. D. Dean, superintendent of the federal hatchery at Bozeman, Mont., was allowed to make an experimental collection of black-spotted eggs from Lake Trout, near Soda Butte. He reports that the eggs secured were of fine quality, and states that with proper preparation and by holding the eggs at the lake until they were eyed he believes from 500,000 to 1,000,000 eggs of very fine quality could be gathered at that point yearly.

WILD ANIMALS.

Although the past winter was a severe one, all game seemed to have wintered well. Quite a number of deaths were reported among the elk calves, due to the severe weather, but otherwise the deaths were about as usual. The disease among the deer which was noted in my last annual report did not reappear last spring.

ANTELOPE.

The herd of antelope, which is wintered on the hay cut from the alfalfa field near Gardiner and scatters throughout the mountains in summer, is evidently increasing. As the natural instinct of this animal carries it down the valleys to escape the cold storms of winter the preservation of this herd is doubtless due to the fence along the north line of the park and to the feeding of the alfalfa during the severe months of winter. The past winter being colder than usual, the antelope were continually striving to get into the lower country. For some reason unknown, due diligence was not taken to prevent their getting out or to drive them back when they did get out. The superintendent was absent in San Francisco during the winter months, and on his return it was found that there were but 20 to 25 antelope remaining in the park. Means were at once taken to secure the return of the herd by raising the fence for about a mile, scattering alfalfa along this fence for a distance of a half mile or more on the outside, then a detail of soldiers and rangers was sent to make a drive covering some 7 miles in width. In this way some 600 or 700 were returned.

DEER.

Both the black-tailed, or mule deer, and the white-tailed, or Virginia deer, are found in the park. About 800 of the black-tailed and 100 of the white-tailed were fed alfalfa during the past winter; 400 black-tailed deer were seen daily near Fort Yellowstone, where they were fed. The others were to be seen between Gardiner and the post along the road, where hay was scattered three times a week. It was noted that nearly every female was accompanied by two fawns; in few instances was there but a single fawn.

ELK.

The estimated number of elk in the park is from 30,000 to 40,000. Many of these elk wander out of the park into the adjoining States, and a few of them are there killed during the hunting season. An occasional one may also be killed inside the border of the park, but such poaching is very limited.

MOOSE.

Moose are seen frequently in the southeastern and also the southwestern parts of the park, and are believed to be increasing in number.

BUFFALO.

WILD HERD.

A herd of 29 wild buffalo was seen in Pelican Valley on February 23, and a small herd of 5 was seen on Cache Creek on February 3. One old bull died during the winter in the vicinity of Yellowstone Lake, and its skeleton and hide were sent to the National Museum at Washington, D. C., as specimens.

FENCED HERD.

The herd of tame buffalo under fence in the park continues to thrive and the increase is satisfactory. The herd now numbers 121 head, of which 28 are this year's calves. One calf was born late last fall, after my annual report had been submitted, but was killed by an old bull when but a few weeks old. A 4-year-old bull that was crippled and generally in bad condition died about November 20. The head of the bull and the robe, head, and skeleton of the calf were shipped to the National Museum at Washington, D. C., as specimens. A yearling calf died September 1, 1910, from the effects of having been gored by one of the old bulls, and the head and skeleton have been saved for shipment later to the National Museum.

Sixteen bulls were removed from the Lamar Valley herd to the pasture at Mammoth Hot Springs, where they were kept during the summer in order that visiting tourists could see them.

Probably 6,000 tourists viewed this herd during the summer, it being one of the main features of the stop at Mammoth Hot Springs.

Another good purpose is served in bringing this herd of bulls to Mammoth during the summer. There are altogether too many bulls in the herd, as they are continually fighting among themselves and endangering the lives of the young calves, and their removal eliminates a portion of this danger. It is believed that it would be better if a number of these old bulls could be disposed of entirely, some of the finest ones being retained each year for breeding purposes.

With the rapid increase of the herd, it is necessary to provide additional meadow land for raising hay for them each summer. The hay crop was very short the past season, and it was necessary to go 4 miles away from the corrals to secure enough for the winter. Including about 35 tons left over from last year, there are about 150 tons on hand, and it is believed that unless the winter is unusually severe this will carry them through until spring if carefully fed. Three thousand dollars was appropriated for the maintenance of the buffalo for the current fiscal year. This sum is now too small for the size of the herd, and it is urgently requested that it be increased next year to $4,000.

During the past summer the entire herd at Rose Creek has been turned loose outside of the inclosure daily for the purpose of grazing. At first they were let out for about two hours, twice daily, and then driven into the inclosure, but this was gradually increased as they became tamer and more used to being handled, until now they are kept out all day. In this way they are enabled to get practically all the feed they need outside of the pasture, which soon becomes short during the dry part of the summer, and at the same time they become accustomed to being handled, and are becoming quite tame and tractable.

BEAR.

Many complaints were received during the summer of damages in various camps by bear. They frequently become so tame that they do not hesitate to destroy tents or go through windows into houses to secure food, and sometimes refuse to be driven away. One man working in a road-sprinkling camp near Excelsior Geyser was quite severely bitten and scratched by a bear that he tried to drive away from the supply tent during the night. He was confined to the hospital for twelve days as a result of his injuries, and his companion, who ran to his assistance, also received some slight scratches. It was thought that it would become necessary to kill some of these vicious bear, and many requests to do so were received from parties who suffered from their depredations, but this was not resorted to. One, however, a 5-year-old female grizzly, was captured at Virginia Meadows in a steel cage trap and shipped by express to the National Zoological Park at Washington, D. C. An attempt was made to catch her two cubs, but they left the night that their mother was caught, and did not return. They are good-sized cubs, however, and will no doubt succeed in taking care of themselves.

COYOTES.

Coyotes are still plentiful. They are killed by scouts and certain authorized soldiers, when possible. About 40 were shot and trapped during the past year.

MOUNTAIN SHEEP.

About 150 mountain sheep were seen during the winter, on Buffalo Plateau, near Tower Falls, and in the vicinity of Mount Everts. About 60 that wintered on Mount Everts were fed alfalfa during the winter, at the feeding pens in Gardiner Canyon.

TRIALS OF OFFENDERS.

The following cases have been tried before the United States commissioner in the park since October 15, 1909:

1909.

Oct. 16. United States *v.* J. C. Nicolson. Charge, killing wild animals in Yellowstone National Park. Case pending.

Oct. 21. United States *v.* L. H. Smith and A. O. Duffey. Charge, hunting wild animals in Yellowstone National Park. Defendant Smith fined $50 and costs, with forfeiture of gun. Defendant Duffey not apprehended.

Nov. 8. United States *v.* Joseph Juff and Stil Huling. Charge, killing elk in Yellowstone National Park. Defendants discharged by United States commissioner at Bozeman, Mont.

1910.

Apr. 7. United States *v.* Charles F. Smith. Charge, larceny. Defendant held to United States district court.

Sept. 1. United States *v.* H. F. Welfare. Charge, giving intoxicating liquor to soldier on duty in Yellowstone Park. Defendant fined $25 and costs; committed to jail in default of payment of same.

Sept. 3. United States *v.* C. C. Rucker. Charge, shooting squirrels in Yellowstone National Park. Defendant fined $25 and costs.

FOREST FIRES.

Owing to the lack of rain throughout the entire western country, the mountains have dried up as never before, rendering the danger from fire serious. The pine needles and grass along the roadsides and near the camps were readily set on fire from cigar and cigarette stumps, or even a match carelessly thrown away. In addition, the ground was so dry that camp fires that were supposedly extinguished by water continued to burn under the ground, and would break out a foot or so from the outer edges as they had existed at the time they were left. Fires were readily started by lightning, for, though we had practically no rain, there were frequent violent electric storms. Had it not been for a careful and thorough patrol by soldiers twice daily of all roads and camp sites the park would have been practically destroyed.

There have been 10 small fires discovered and extinguished by these patrols and soldiers on station in the park during the summer, 4 of them having gained considerable headway and requiring the combined efforts of several men for several hours to extinguish them.

In addition to these fires extinguished by the patrols, there have been three large fires, started farther back in the mountains by lightning. One of these occurred on Mount Holmes, one along Juniper Creek on Marys Mountain, and one south of the Yellowstone Lake. The fire on Marys Mountain threatened to be very serious. It was discovered and reported on August 4. Three troops were sent to fight this fire, and they remained on duty until August 10.

The fire south of the lake broke out on August 11. One troop was withdrawn from Marys Mountain, where it had been left after the others had been withdrawn, and was sent via the Thumb to the location of the fire. A second troop was sent from the post via the Lake Station, and by boat to the South Arm of the lake. These troops did excellent work and deserve the highest commendation for the energy displayed in fighting this fire, which at times was exceedingly fierce. At one time the entire camp was in danger, as the fire traveled very rapidly and troops were cut off by the lake. By working hard during the three weeks that they were on duty, the fire was confined to the limits bounded practically by Solution Creek, thence to the head of Beaver Creek, thence southeast to Channel Mountain, thence northeast to the South Arm of the lake.

Four people were ejected from the park for starting fires through carelessness in extinguishing their camp fires. Now that the act of June 25, 1910, amending the act of March 4, 1909, has been promulgated authorizing the fine and imprisonment of those guilty of this offense it will possibly cause greater care on the part of campers than heretofore.

Very respectfully,
H. C. Benson,
Major, Fifth Cavalry, Superintendent.

The Secretary of the Interior.

RULES AND REGULATIONS.

REGULATIONS OF JULY 2, 1908.

The following rules and regulations for the government of the Yellowstone National Park are hereby established and made public, pursuant to authority conferred by section 2475, Revised Statutes, United States, and the act of Congress approved May 7, 1894:

1. It is forbidden to remove or injure the sediments or incrustations around the geysers, hot springs, or steam vents; or to deface the same by written inscription or otherwise; or to throw any substance into the springs or geyser vents; or to injure or disturb, in any manner, or to carry off any of the mineral deposits, specimens, natural curiosities, or wonders within the park.

2. It is forbidden to ride or drive upon any of the geyser or hot-spring formations, or to turn stock loose to graze in their vicinity.

3. It is forbidden to cut or injure any growing timber. Camping parties will be allowed to use dead or fallen timber for fuel. When felling timber for fuel or for building purposes when duly authorized, stumps must not be left higher than 12 inches from the ground.

4. Fires shall be lighted only when necessary, and completely extinguished when not longer required. The utmost care must be exercised at all times to avoid setting fire to the timber and grass.

5. Hunting or killing, wounding or capturing any bird or wild animal, except dangerous animals when necessary to prevent them from destroying life or inflicting an injury, is prohibited. The outfits, including guns, traps, teams, horses, or means of transportation used by persons engaged in hunting, killing, trapping, ensnaring, or capturing such birds or wild animals, or in possession of game killed in the park under other circumstances than prescribed above, will be forfeited to the United States, except in cases where it is shown by satisfactory evidence that the outfit is not the property of the person or persons violating this regulation, and the actual owner thereof was not a party to such violation. Firearms will only be permitted in the park on written permission from the superintendent thereof. On arrival at the first station of the park guard, parties having firearms, traps, nets, seines, or explosives will turn them over to the sergeant in charge of the station, taking his receipt for them. They will be returned to the owners on leaving the park.

6. Fishing with nets, seines, traps, or by the use of drugs or explosives, or in any other way than with hook and line, is prohibited. Fishing for purposes of merchandise or profit is forbidden. Fishing may be prohibited by order of the superintendent of the park in any of the waters of the park or limited therein to any specified season of the year, until otherwise ordered by the Secretary of the Interior.

7. No person will be permitted to reside permanently or to engage in any business in the park without permission, in writing, from the

Department of the Interior. The superintendent may grant authority to competent persons to act as guides and revoke the same in his discretion, and no pack trains shall be allowed in the park unless in charge of a duly registered guide.

8. The herding or grazing of loose stock or cattle of any kind within the park, as well as the driving of such stock or cattle over the roads of the park, is strictly forbidden, except in such cases where authority therefor is granted by the Secretary of the Interior. It is forbidden to cut hay within the boundaries of the park, excepting for the use of the wild game, and such other purposes as may be authorized by the Secretary of the Interior or the park superintendent.

9. No drinking saloon or barroom will be permitted within the limits of the park.

10. Private notices or advertisements shall not be posted or displayed within the park, except such as may be necessary for the convenience and guidance of the public, upon buildings on leased ground.

11. Persons who render themselves obnoxious by disorderly conduct or bad behavior, or who violate any of the foregoing rules, will be summarily removed from the park, and will not be allowed to return without permission, in writing, from the Secretary of the Interior or the superintendent of the park.

12. It is forbidden to carve or write names or other things on any of the mileposts or signboards, or any of the platforms, seats, railings, steps, or any structures or any tree in the park.

Any person who violates any of the foregoing regulations will be deemed guilty of a misdemeanor, and be subjected to a fine as provided by the act of Congress approved May 7, 1894, "to protect the birds and animals in Yellowstone National Park and to punish crimes in said park, and for other purposes," of not more than one thousand dollars, or imprisonment not exceeding two years, or both, and be adjudged to pay all costs of the proceedings.

INSTRUCTIONS OF JULY 2, 1908.

(1) The feeding, interference with, or molestation of any bear or other wild animal in the park in any way by any person not authorized by the superintendent is prohibited.

(2) *Fires.*—The greatest care must be exercised to insure the complete extinction of all camp fires before they are abandoned. All ashes and unburned bits of wood must, when practicable, be thoroughly soaked with water. Where fires are built in the neighborhood of decayed logs, particular attention must be directed to the extinguishment of fires in the decaying mold. Fire may be extinguished where water is not available by a complete covering of earth, well packed down. Care should be taken that no lighted match, cigar, or cigarette is dropped in any grass, twigs, leaves, or tree mold.

(3) *Camps.*—No camp will be made at a less distance than 100 feet from any traveled road. Blankets, clothing, hammocks, or any other article liable to frighten teams must not be hung at a nearer distance than this to the road. The same rule applies to temporary stops, such as for feeding horses or for taking luncheon.

Many successive parties camp on the same sites during the season, and camp grounds must be thoroughly cleaned before they are abandoned. Tin cans must be flattened and, with bottles, cast-off clothing, and all other débris, must be deposited in a pit provided for the purpose. When camps are made in unusual places where pits may not be provided, all refuse must be hidden where it will not be offensive to the eye.

(4) *Bicycles.*—The greatest care must be exercised by persons using bicycles. On meeting a team the rider must stop and stand at side of road between the bicycle and the team—the outer side of the road if on a grade or curve. In passing a team from the rear, the rider should learn from the driver if his horses are liable to frighten, in which case the driver should halt and the rider dismount and walk past, keeping between the bicycle and the team.

(5) *Fishing.*—All fish less than 6 inches in length should at once be returned to the water with the least damage possible to the fish. No one person shall catch more than twenty fish in one day.

(6) *Dogs.*—Dogs and cats are not permitted in the park.

(7) *Grazing animals.*—Only animals actually in use for purposes of transportation through the park may be grazed in the vicinity of the camps. They will not be allowed to run over any of the formations, nor near to any of the geysers or hot springs; neither will they be allowed to run loose within 100 feet of the roads.

(8) *Hotels.*—All tourists traveling with the authorized transportation companies, whether holding hotel coupons or paying cash, are allowed the privilege of extending their visit in the park at any of the hotels without extra charge for transportation. However, twenty-four hours' notice must be given to the managers of the transportation companies for reservations in other coaches.

(9) *Boat trip on Yellowstone Lake.*—The excursion boat on Yellowstone Lake plying between the Lake Hotel and the Thumb Lunch Station at the West Bay is not a part of the regular transportation of the park, and an extra charge is made by the boat company for this service.

(10) *Driving on roads of parks.*—(*a*) Drivers of vehicles of any description, when overtaken by other vehicles traveling at a faster rate of speed, shall, if requested to do so, turn out and give the latter free and unobstructed passageway.

(*b*) Vehicles, in passing each other, must give full half of the roadway. This applies to freight outfits as well as any other.

(*c*) Racing on the park roads is strictly prohibited.

(*d*) Freight, baggage, and heavy camping outfits on sidehill grades throughout the park will take the outer side of the road while being passed by passenger vehicles in either direction.

(*e*) In making a temporary halt on the road for any purpose, excepting for lunch or camp, all teams and vehicles will be pulled to one side of the road far enough to leave a free and unobstructed passageway.

(*f*) In rounding sharp curves on the roads, like that in the Golden Gate Canyon, where the view ahead is completely cut off, drivers will slow down to a walk. Traveling at night is prohibited except in cases of emergency.

(*g*) Transportation companies, freight and wood contractors, and all other parties and persons using the park roads will be held liable for violation of these instructions.

(*h*) Pack trains will be required to follow trails whenever practicable. During the tourist season, when traveling on the road and vehicles carrying passengers are met, the pack train must move off the road not less than 100 feet and await the passage of the vehicle.

(*i*) During the tourist season pack animals, loose animals, or saddle horses, except those ridden by duly authorized persons on patrol or other public duties, are not permitted on the coach road between Gardiner and Fort Yellowstone.

(*k*) Riding at a gait faster than a slow trot on the plateaus near the hotels where tourists and other persons are accustomed to walk is prohibited.

(*l*) Mounted men on meeting a passenger team on a grade will halt on the outer side until the team passes. When approaching a passenger team from the rear warning must be given, and no faster gait will be taken than is necessary to make the passage, and if on a grade the passage will be on the outer side. A passenger team must not be passed on a dangerous grade.

(*m*) All wagons used in hauling heavy freight over the park roads must have tires not less than 4 inches in width. This order does not apply to express freight hauled in light spring wagons with single teams.

(11) *Miscellaneous.*—Automobiles are not permitted in the park.

Persons are not allowed to bathe near any of the regularly traveled roads in the park without suitable bathing clothes.

All complaints by tourists and others as to service, etc., rendered in the reservation should be made to the superintendent in writing before the complainant leaves the park.

(12) The penalty for disregard of these instructions is summary ejection from the park.

Information relative to side trips in the park and the cost thereof can be procured from those authorized to transport passengers through or to provide for camping parties in the park, also at the office of the superintendent.

REGULATIONS OF OCTOBER 11, 1900, GOVERNING THE IMPOUNDING AND DISPOSITION OF LOOSE LIVE STOCK.

Horses, cattle, or other domestic live stock running at large or being herded or grazed in the Yellowstone National Park without authority from the Secretary of the Interior will be taken up and impounded by the superintendent, who will at once give notice thereof to the owner, if known. If the owner is not known, notices of such impounding, giving a description of the animal or animals, with the brands thereon, will be posted in six public places inside the park and in two public places outside the park. Any owner of any animal thus impounded may, at any time before the sale thereof, reclaim the same upon proving ownership and paying the cost of notice and all expenses incident to the taking up and detention of such animal, including the cost of feeding and caring for the same. If any animal thus impounded shall not be reclaimed within thirty days from notice to the owner or from the date of posting notices, it shall be sold at public auction at such time and place as may be fixed by the superintendent after ten days' notice, to be given by posting notices in six public places in the park and two public places outside the park, and by mailing to the owner, if known, a copy thereof.

All money received from the sale of such animals and remaining after the payment of all expenses incident to the taking up, impounding, and selling thereof shall be carefully retained by the superintendent in a separate fund for a period of six months, during which time the net proceeds from the sale of any animal may be claimed by and paid to the owner upon the presentation of satisfactory proof of ownership, and if not so claimed within six months from the date of sale such proceeds shall be turned into the Yellowstone National Park fund.

The superintendent shall keep a record in which shall be set down a description of all animals impounded, giving the brands found on them, the date and locality of the taking up, the date of all notices and manner in which they were given, the date of sale, the name and address of the purchaser, the amount for which each animal was sold and the cost incurred in connection therewith, and the disposition of the proceeds.

The superintendent will, in each instance, make every reasonable effort to ascertain the owner of animals impounded and to give actual notice thereof to such owner.

PENALTY FOR INJURING TREES AND FOR NOT EXTINGUISHING FIRES.

[Excerpt from an act entitled "An act to provide for determining the heirs of deceased Indians, for the disposition and sale of allotments of deceased Indians, for the leasing of allotments, and for other purposes," approved, June 25, 1910 (36 Stat., 857), providing punishment for depredations and for not extinguishing fires on public lands, etc.]

SEC. 6. That section fifty of the act entitled "An act to codify, revise, and amend the penal laws of the United States," approved March fourth, nineteen hundred and nine (Thirty-fifth United States Statutes at Large, page one thousand and ninety-eight), is hereby amended so as to read:

SEC. 50. Whoever shall unlawfully cut, or aid in unlawfully cutting, or shall wantonly injure or destroy, or procure to be wantonly injured or destroyed, any tree, growing, standing, or being upon any land of the United States which, in pursuance of law, has been reserved or purchased by the United States for any public use, or upon any Indian reservation or lands belonging to or occupied by any tribe of Indians under the authority of the United States, or any Indian allotment while the title to the same shall be held in trust by the Government, or while the same shall remain inalienable by the allottee without the consent of the United States, shall be fined not more than five hundred dollars, or imprisoned not more than one year, or both.

That section fifty-three of said act is hereby amended so as to read:

Sec. 53. Whoever shall build a fire in or near any forest, timber, or other inflammable material upon the public domain, or upon any Indian reservation, or lands belonging to or occupied by any tribe of Indians under the authority of the United States, or upon any Indian allotment while the title to the same shall be held in trust by the Government, or while the same shall remain inalienable by the allottee without the consent of the United States, shall, before leaving said fire, totally extinguish the same; and whoever shall fail to do so shall be fined not more than one thousand dollars, or imprisoned not more than one year, or both.

REPORT OF THE ACTING SUPERINTENDENT OF THE YOSEMITE NATIONAL PARK.

REPORT OF THE ACTING SUPERINTENDENT OF THE YOSEMITE NATIONAL PARK.

OFFICE OF THE SUPERINTENDENT,
Yosemite, Cal., October 15, 1910.

The SECRETARY OF THE INTERIOR,
Washington, D. C.

SIR: I have the honor to submit the following report of conditions and administration in the Yosemite National Park during the season of 1910:

GENERAL STATEMENT.

This park is situated in Tuolumne, Mariposa, and Mono counties, Cal., and originally covered an area of about 1,512 square miles. The lands embraced therein were set aside by act of Congress approved October 1, 1890 (26 Stat., 650), and were placed under the supervision of the Secretary of the Interior. By the act of February 7, 1905 (33 Stat., 702), and the joint resolution of June 11, 1906 (34 Stat., 831), the boundaries were changed, excluding a total of 555.94 square miles therefrom and including a total of 168.35 square miles not previously within the reservation, making the present area of 1,124.41 square miles, or 719,622.40 acres. The second change in boundaries included the recession of Yosemite Valley and Mariposa Big Tree Grove to the Federal Government.

It seems to be not generally known that Yosemite Valley is open to travel all the year round, and that, while it is impracticable because of the snow to ascend any of the trails up to the rim of the valley, the principal roads are passable.

The unusually early spring freed the roads of snow by April 1, and the stages from Yosemite Valley to the Mariposa Big Tree Grove began running on that date, which is a month earlier than usual. The stage line between the valley and El Portal is in operation all the year.

I returned to my station at the Presidio of San Francisco on December 4, 1909, visiting the park from time to time during the winter for administrative purposes. On April 15 I returned to the park to remain for the season.

Troops D and K, First Cavalry, under orders from the commanding general of the department, arrived in Yosemite Valley on May 4, 1910, and reported to me for duty in the park.

As soon as practicable, detachments were stationed at Wawona, the Mariposa Big Tree Grove, Crane Flat, Merced Big Trees, Aspen Valley, Hog Ranch, Hetch Hetchy Valley, Lake Eleanor, Buck Creek, and Soda Springs. Districts were assigned the detachment, which was provided with written instructions and a schedule of patrols. These troops were new to the park and some time was required to make them acquainted with their duties and with the geography of the park, but they were in the main zealous in learning and carrying out instructions.

GRAZING.

No sheep or stock have been herded through the park, but much trouble and friction with cattle and cattle owners was caused by the drifting in of cattle from the forest reserve on the west side, and it became necessary to report the owners to the forest supervisor for the violations of the conditions of their grazing permits.

FIRES.

There have been numerous fires, several of them in Yosemite Valley, but except three they were all small and extinguished before serious damage was done.

Of the three large fires, one was on the north side of the ridge about 1 mile northwest of Bald Mountain, and while several square miles were burned over the fire was nearly all among fallen timber, stumps, and undergrowth, and no serious damage resulted.

Another large fire was about one-half mile southwest of the point where the Big Oak Flat road crosses Tamarack Creek, and burned over an area about a half mile wide and a mile long, but it was largely confined to dead branches and undergrowth.

The third large fire started near the Wawona road about one-half mile west of Alder Creek, and burned over about 1 square mile, but no large trees were materially damaged by it. Nearly all these fires are believed to have been caused by careless visitors, the exceptions being caused by lightning.

The troops deserve warm thanks and commendation for the energy and efficiency with which they performed the arduous duties and labors of fire fighting.

On request of the forest officials one officer and ten men were sent to aid in extinguishing a large fire near Hazel Green, in the Stanislaus Forest Reserve, and they rendered material assistance.

GAME.

It is gratifying to be able to report a marked increase in deer, bear, grouse, and quail. Coyotes have increased also, but there have been no indications of increase in cougar, or mountain lion, and the timber wolf.

The bears caused much annoyance to campers in Yosemite Valley during the latter part of the summer by prowling around their tents at night and eating their food supplies, and it may become necessary to destroy some of them to keep them out of the valley for the above reason, and also because serious disaster might result should a bear be met on one of the high trails by a riding party. The odor of a bear will drive most horses or mules frantic with fear.

FISH.

Twelve cans of rainbow, 6 cans of eastern brook, and 6 cans of Loch Leven trout, about 4,000 to the can, were received from the California fish and game commission, Sisson hatchery, of which 14 cans were planted in the Merced River between Happy Isles and Pohono Bridge, 3 in Bridal Veil Creek below the falls, and 4 in Tenaya Creek. These plants were made on the night of July 14.

Because the streams in Yosemite Valley were fished out fishing in them has been prohibited until July 1, 1912, by which time, it is believed, fish will be abundant, though it will be advisable to reduce the limit of catch to 25.

FENCES.

The recommendation of last year, that the western boundary be fenced, is renewed.

There has been little trouble this year from trespassing of cattle or other stock, except upon a portion of the western and southwestern boundary. It is practically impossible to protect the entire western line with the few outposts that can be established, and there results some friction with the owners of cattle that are permitted to graze in the forest reserve immediately up to the boundary, but are not allowed to graze within the park. All this friction could be easily avoided by the construction of a fence as suggested. It would require about 50 miles of fence, which could readily be put up at a cost of not more than $10,000; and it is believed that this would be one of the wisest measures that could be adopted for the prevention of friction and misunderstanding with cattlemen.

It will be necessary to place a fence around the big tree, Grizzly Giant, in the Mariposa grove, to protect the tree from vandalism, and an estimate of cost has been submitted.

PATENTED LANDS.

There are approximately 20,000 acres of timber and homestead claims in the park, and I can not urge too strongly the need of action looking toward the acquisition by the Government of all these patented lands.

There are no persons now living upon patented lands within the limits of the Yosemite National Park, with the exception of Mr. Kibby, at Lake Eleanor. All patented lands upon which people were living were excluded from the park by the joint resolution of June 11, 1906. The only patented lands now retained are timber claims and a few claims that were taken up under the homestead act and were never occupied as homesteads, but simply used as a pretext for bringing in stock to stray upon the park lands. These private lands are no longer of any value to their owners, as there is not sufficient grazing on them to keep half a dozen animals during the summer. The timber claims are valuable and are becoming more so each year. Some of the finest sugar-pine timber in California lies within the limits of the park, along the line of the road from Wawona to Chinquapin Station. The large tract of timber land which formerly was in the park, but was excluded by the act of February 7, 1905, has already been purchased by a lumber company, and a railroad constructed directly into this timber, and active steps taken to put the lumber upon the market. The Sugar Pine Lumber Company, which formerly was operating 40 miles south of the Yosemite National Park, is now cutting timber within three-quarters of a mile of the southern boundary, and the mountains are rapidly being denuded of all timber. This is what will happen to the timber upon all the patented lands within the limits of the park in a very short time unless they are purchased by the Government and all private rights extinguished. This is a matter which needs urgent attention and should no longer be neglected. It would be greatly to the interests of the Government to purchase all private claims within the park and thus extinguish them. The necessity of preserving the forest in this portion of the park and of reducing the number of private claims to such an extent as would justify the Federal Government in purchasing the remaining claims was one of the main points which caused the Yosemite Commission of 1904 to recommend the reduction of the area of the park. This commission, as has every other person who has been charged with the welfare of the park or with making any recommendations with regard to it, recommended that the Government immediately purchase and extinguish all private rights.

The Yosemite Lumber Company is now surveying for a logging railroad from the park boundary near Chinquapin to El Portal, and they have applied for permission to continue the survey to the timber lands that they claim to own in the park.

TELEPHONE SERVICE.

The telephone service has been further extended, repaired, and improved, so that now all the outposts are in telephonic communication with the superintendent's office in Yosemite Valley. The administration and control of the park has been still more facilitated by these extensions and improvement, leaving little to be desired in the way of quick communication. The Pacific Telephone and Telegraph Company, by permission of the department, operates its lines from the Yosemite Valley to the outside world by way of El Portal, and permission has recently been granted for the extension of the line from the village to Camp Curry. One of the conditions on which their permit was granted is that all government messages shall be transmitted free.

ROADS.

The only government roads in the park are those in the Yosemite Valley, portions of the Coulterville, Big Oak Flat, and Wawona roads, and the road from the valley to El Portal, about 35 miles in all.

Before the Yosemite Valley grant was ceded to the Government the State of California had purchased that portion of each road lying within the grant, and these portions were included in the cession to the Government, which explains how a portion of each of these toll roads became government roads.

All other roads in the park, totalling about 116 miles in length, are toll roads, namely, the Coulterville, the Big Oak Flat, the Wawona, and the Tioga roads.

So far as these toll roads lie in the park it is of course desirable that their franchises be extinguished, but the matter is complicated. The roads were built under proper authority many years ago before the park was created, and the right of the owners to collect toll until the expiration of their franchises, if they duly fulfill their obligations to keep the roads in good condition, would seem to be unquestionable.

For full information about these roads, reference is invited to the Report of the Yosemite Park Commission, Senate Document No. 34, Fifty-eighth Congress, third session, from which most of the data here given were obtained.

COULTERVILLE ROAD.

The Coulterville and Yosemite Turnpike Company was incorporated apparently in 1870; the road was completed and opened to travel June 17, 1874, being the first road into the valley; original length, 31 miles. In 1885–1887 the State purchased the 4 miles east of the "blacksmith shop." A branch was built from Hazel Green to Crane Flat on the Big Oak Flat road, a distance of 4.8 miles, making the total length owned by the company 31.8 miles, of which about 19 miles is within the park; western terminus is Bower Cave, on North Fork of Merced River; highest elevation, 6,050 feet; original cost of road and subsequent permanent improvements to end of 1899, $85,000; the State paid 10,000 for the portion within the State grant. The franchise of this road expires about 1920.

BIG OAK FLAT ROAD.

The Big Oak Flat and Yosemite Turnpike Road Company was incorporated January 20, 1871; the road was completed in 1874; original length, 33 miles; State of California in 1886 bought the 3 miles within the valley grant; length in present park about 10 miles; western terminus on line between Mariposa and Tuolumne counties in sec. 27, T. 1 S., R. 17 E., Mount Diablo Base and Meridian; highest elevation on road, 7,250 feet; original cost of construction, $40,000. The franchise of this road expires January 20, 1921.

WAWONA ROAD.

The Yosemite Stage and Turnpike Company was incorporated November 16, 1877, but the road had been begun before that; it was completed in 1874; original length, including three branches, 67 miles; State purchased 7 miles within valley grant in 1886; present length in park, excluding Glacier Point branch, 19 miles; length of Glacier Point branch, about 13 miles; northern terminus at the line between Madera and Mariposa counties; highest elevation on the main line, 6,390 feet; on Glacier Point branch, 8,200 feet; original cost of construction of entire system, $77,000; cost of the portion of the main line lying in park, $35,000. The franchise of this road expires November 16, 1927.

TIOGA ROAD.

Official title. Great Sierra Wagon Road; name of company, Great Sierra Consolidated Silver Mining Company; incorporated about 1881; road completed in 1883; length, 56 miles; length in present park, about 45 miles; western terminus at Sequoia, or Crockers, on Big Oak Flat road; eastern terminus, Tioga, east of Sierra Divide; highest elevation, 9,941 feet; original cost, about $62,000; tolls collected only one or two years, since which time none has been collected nor the road kept in good repair. The franchise of this road expires January 8, 1934. There has been considerable wagon travel over this road this summer, but the road is in wretched condition.

GOVERNMENT ROADS.

The El Portal-Yosemite Village road is the main highway into the park, and travel over it was made fairly comfortable this season by the installation of a water-sprinkling system. This system has not been quite faultless, due to an insufficient number of water stations, but the defect is recognized and the remedy found, and it will be applied early next season. That portion of the road between El Portal and Pohono Bridge, about 10 miles, is still rocky, narrow, and tortuous, and it should be widened, straightened, regulated in grade, and metaled. Work has been resumed on that portion of this road between El Capitan Bridge and the village, where it was discontinued last year, about 1½ miles east of the bridge, and is progressing rapidly and satisfactorily by day labor under an allotment of $14,000. This portion of the road had already been graded, culverts put in, and large quantities of stone distributed alongside when work was discontinued last fall, and it is believed that it will be completed as far as Camp Ahwahnee with the present allotment. The portion of the Wawona road that belongs to the Government should be improved and sprinkled, and all the roads on the floor of the valley should be metaled, parts of them being relocated, in order to follow more attractive routes, and especially should the portion between the village and Happy Isles, on the south side of the river, be metaled and sprinkled first, because of the preponderance of travel over it. Two 5,000-gallon water tanks were installed between Camp Ahwahnee and El Capitan Bridge to supply water for sprinkling the new road between those points, and it is intended to convey electric power along this road to run the pumps that will fill these tanks, and also by further extension run the rock-crushing machinery at the rock quarry near Pohono Bridge. An allotment has been made for this purpose.

TRAILS.

All the important trails exterior to the Yosemite Valley have been repaired and those from Tamarack Flat to Aspen Valley and from the Hetch Hetchy Valley to Lake Eleanor have been materially shortened and improved. A large number of guide signs on many of these trails were put up.

An allotment was made for the construction of a new trail from above Mirror Lake to Lake Tenaya, and the trail has been completed nearly to the top of the cliff in Tenaya Canyon, all the most difficult work having been finished.

It will not be practicable to finish this trail this fall, but the unfinished portion will be easy and admit of rapid progress, so that it will be open for travel early next season and will provide a most attractive trip.

All the old trails leading up from the floor of the valley to the rim, about 24 miles total, are subjected every year to heavy travel and the wear and tear on them is great. They were all kept in good condition, but it required constant labor.

BRIDGES.

A new wagon bridge was built over the Merced River at the power plant, a new footbridge was built to Happy Isles, and a new wagon bridge over Cascade Creek on the Yosemite-El Portal road is under construction.

For convenience of reference, names were given to all the large bridges in Yosemite Valley not already named—the one over Merced River near the Sentinel Hotel, Sentinel; that over the Merced between Kenneyville and Camp Curry, Stoneman; that over the Merced near the orchard in the east end of the valley, Clark; that over Tenaya Creek, Tenaya; and that over the Merced near Happy Isles, Secretary.

The Sentinel Bridge should be replaced by a reenforced-concrete bridge about four times as wide as the present bridge, which is just wide enough for one wagon and is in a dilapidated condition. As the view from the bridge is attractive, visitors frequently gather there to admire it, but are compelled to move off the bridge whenever a team passes over.

CONCESSIONS.

The following concessions were held in the park during the period from November 1, 1909, to October 31, 1910:

Concessions, November 1, 1909, to October 31, 1910.

No.	Name.	For what granted.	Expiration.	Annual rental.
	Leases.			
	Cook, J. B	Sentinel and Glacier Point hotels.	Oct. 31, 1910	$3,500
	Coffman & Kenney	Livery	do	1,500
	Jorgensen, Chris	Studio	Oct. 31, 1914	1
	Permits.			
1	Best, H. C	Studio, photographs	Oct. 31, 1910	300
2	Boysen, J. T	do	do	300
3	Claflin, Mrs. Eleanor B	Hand-painted china	do	50
4	Clark, Galen	Residence	do	1
5	Coffman & Kenney	Blacksmith shop	do	40
6	Cook, J. B	Public camp	do	1,000
7	Curry, David A	do	do	1,000
8	Degnan, John	Residence	do	20
9	Degnan, Mrs. John	Sale of bread, milk, etc	do	25
10	Fiske, George	Studio, photographs	do	20
11	Foley, D. J	do	do	250
12	Pillsbury, Arthur C	do	do	300
13	Salter, Nelson L	Merchandise store	do	1,000
14	Sell, W. M	Public camp	do	600
15	Yosemite Transportation Co	Transportation	do	2,000
16	do	do	do	2,500
17	Baxter, E. N	Studio, photographs	do	50
18	Yosemite Transportation Co	Hauling freight	do	250
19	Noce, Fred	Peddling fruit	do	25
20	Torrence, Edward	Guide	do	16
21	McCauley, F. W	Butcher wagon	do	25
22	Langworthy, R. D	Guide	do	32
23	Jones, Chas. E	do	do	40
24	Baker, John, jr	Transportation	Aug. 15, 1910	50
25	Jones, Tom M	Guide	Oct. 31, 1910	16

HOTELS AND CAMPS.

There is only one hotel in the Yosemite Valley, and it was built years ago for summer use only, possesses few conveniences, and does not even admit of being remodeled to advantage.

A new hotel in a different locality is an urgent need of the park. Mr. Frank A. Miller, whose application for the privilege of building a new hotel in the valley was approved several years ago, seems to have abandoned the enterprise.

Camp Ahwahnee, near the foot of the Glacier Point trail; Camp Lost Arrow, near the foot of the Yosemite Falls; and Camp Curry, under Glacier Point, were all operated satisfactorily during the summer, but the sewer systems of Camp Ahwahnee and Camp Curry were troublesome toward the end of the season. It is believed the fault will be remedied by additional septic tanks, which have been already built for Camp Curry and will be built also for Camp Ahwahnee before next season.

The capacity of Camp Curry was enlarged to 400 guests, and these camps, with the hotel and its annexes, were sufficient to comfortably accommodate all visitors during the season.

SAN FRANCISCO WATER SUPPLY.

In 1907 the Secretary of the Interior granted a hearing at San Francisco in regard to reopening the matter of granting reservoir rights of way in the Hetch Hetchy Valley and at Lake Eleanor, in the Yosemite National Park, for the furnishing of an adequate supply of Sierra water for the city of San Francisco, under an application of James D. Phelan, former mayor of the city, which had been filed October 15, 1901, later assigned to the city, and denied by the department. Mr. Marsden Manson, city engineer, department of public works, was given authority to act for the city, and after extended hearings, conferences, and the submission of briefs for and against the proposition the Secretary, in the exercise of the discretion vested in him by the act of February 15, 1901, reinstated the Phelan application on May 11, 1908, and granted the option which the city of San Francisco desired until the matter could be submitted to the voters and definite action taken upon the filing of certain stipulations affording ample protection to the park lands and to the rights of the Modesto and Turlock irrigation districts to the use of the flow of the Tuolumne River. The stipulations provide, among other things, that the Lake Eleanor site shall be developed to its full capacity before beginning the development of the Hetch Hetchy site. The city will be required to pay for timber cut or used in the exploitation of the reservoir sites or rights of way for conduits, etc., and for any power which may be generated in the future and sold commercially.

The city's representatives have surveyed a dam site in sec. 3, T. 1 N., R. 19 E., at Lake Eleanor, and have begun to clear and explore for foundations for the dam, the timber on the site having first been appraised by a forest officer of the Department of Agriculture, at the request of the Secretary of the Interior. A camp site and temporary buildings for the laborers were also established. Preliminary surveys of the Lake Eleanor main canal, running from the dam above mentioned to a junction with the Hetch Hetchy main canal, and of the Cherry Creek diversion canal, running from Cherry Creek, in sec. 8, T. 2 N., R. 19 E., to the Lake Eleanor dam site, were approved by the department on February 25, 1909.

The sum of $13,128.77 has been accepted from the city as payment in full for timber and forest growth in the reservoir space of Lake Eleanor, Tuolumne County, Cal., upon the land under control of the United States to be flooded by the first reservoir level constructed under the grant to the city of May 11, 1908.

On February 25, 1910, the Secretary of the Interior issued a citation to the mayor and supervisors of the city and county of San Francisco to show cause why the Hetch Hetchy Valley and reservoir site should not be eliminated from the permit granted May 11, 1908, for a water supply for the said city and county. A board of army engineers, consisting of Lieut. Col. John Biddle, Lieut. Col. Harry Taylor, and Maj. Spencer Cosby, U. S. Engineer Corps, were detailed at the request of the Secretary of the Interior as advisory to him in the disposition of the question. An application having been made by the city of San Francisco for an extension of time to secure further data, the department granted a continuance for such purpose for one year, or until June 1, 1911, and the advisory board of army engineers was authorized to receive such data as might be furnished by the city to establish its claims for the necessity for the use of the Hetch Hetchy Valley site, and secure such further information on the subject as might be deemed advisable. Congress made an appropriation of $12,000 to defray the expenses of this board.

BUILDINGS.

An attractive office building, 24 feet square, with an exterior of pine poles and cedar bark, was built by the Yosemite Transportation Company in Yosemite village nearly opposite the superintendent's office, at a cost of $1.351.26.

The Pacific Telephone and Telegraph Company occupy a part of this building, for which it pays a monthly rental of $10, beginning May 23, 1910, with the understanding that when the Yosemite Transportation Company shall have received rentals sufficient to reimburse them for the cost of the building no further rental shall be charged.

The cottage of the supervisor reported last year as nearly completed, at a cost of $2,800, was finally completed at a cost of $3,150, the department having increased the allotment after last year's report was submitted.

A cottage with barn and stable was built at both Cascade Creek and the Arched Rocks for the use of road laborers. and the drivers of the road-sprinkling wagons and their wagons and teams.

The blacksmith shop in Yosemite Valley was enlarged so as to permit wagons to be taken inside for repairs, and minor repairs and improvements were made on nearly all the buildings in the park used by the Government.

It is recommended that a residence and an office be constructed for the superintendent. The present building, used for both purposes, is too small.

POWER PLANT, WATER DISTRIBUTION, AND SANITATION.

An allotment of $10,000 was made last year to remedy the precarious condition of the power plant, which is due to the fact that the pipe furnishing the water runs through a tunnel of loose earth and stone, which tunnel has already caved in, but without damaging the pipe. As further caving of the tunnel seems imminent, and as it would necessitate a shut down of the plant for an extended period if it occurred, a new trench for the pipe has been opened around the tunnel so as to completely eliminate the tunnel. The new head gate and fore bay and trench are nearly finished and it is expected that all will be completed early in November.

In the appendix to the annual report for 1908 of the acting superintendent are reports made by Mr. M. O. Leighton, chief hydrographer, United States Geological Survey, on September 22 and December 4, 1907, describing the flimsy material, faulty construction, and critical condition of this plant. It should be replaced by a new one of greater capacity. The condition of the water-distributing system is still deplorable, and there was a marked shortage of water for a considerable period this season in Camp Curry and in the army camp, due to the unusually long dry season.

These two camps and Yosemite village are supplied from a spring near the foot of Glacier Point. The water is of ideal purity and quality and it is believed its capacity can be greatly developed.

The method of sewage disposal suggested by Mr. Leighton in 1907 for Kenneyville and camps Ahwahnee and Curry, were continued this year, but as stated elsewhere, with less satisfactory results at the camps.

UNDERGROWTH.

The dense thickets that are growing up in Yosemite Valley should be cleared, and the trees thinned out, care being taken to leave the best. The willow thicket that had swallowed up the Bridal Veil Meadow has been, to a large extent, cleared out this fall.

BIG TREES.

The Mariposa Big Tree Grove was twice during the summer menaced by large forest fires that, starting outside some distance away and burning toward the grove, gained such headway that they were stopped only within a half mile of the grove. It is believed that if a fire guard about 150 feet wide were cut entirely around this grove and some of the interior undergrowth removed the danger of the destruction of the grove by fire would be removed, as a fire starting within the grove would surely be discovered before it could gain much headway. It is recommended that an appropriation be made for this purpose.

Many of the signs attached to the trees are most unsightly and inappropriate, and until suitable tablets in harmony with the environment can be substituted they will be replaced by a small metal plate, painted black, with the name in gilt.

GALEN CLARK.

Galen Clark died at Oakland, Cal., March 24, 1910, and was buried in Yosemite Valley on April 2 following at a place chosen by himself not far from the Yosemite Falls. He was nearly 96 years old and for twenty-four years was guardian of the Yosemite Valley and Mariposa Big Tree Grove under the State of California. Although he resigned the guardianship in 1897, he continued to reside in the valley, except in the winter, and it was his desire that he might be in the valley when death should come to him. It was his wish that a seat might be provided somewhere near Yosemite Falls where old people might sit and view the falls, and an allotment has been made to provide such a seat as a memorial to him.

It is appropriate to repeat here the following tribute:

Whereas Galen Clark has for a long number of years been closely identified with Yosemite Valley, and has for a considerable portion of that time been its guardian; and

Whereas he has by his own choice and will relinquished the trust confided in him and retired to private life; and

Whereas his faithful and eminent services as guardian; his constant efforts to preserve, protect, and enhance the beauties of Yosemite; his dignified, kindly, and courteous demeanor to all who have come to see and enjoy its wonders, and his upright and noble life deserve from us a fitting recognition and memorial. Now, therefore, be it

Resolved, That the cordial assurance of the appreciation by this commission of the efforts and labors of Galen Clark as guardian of Yosemite be tendered and expressed to him;

That we recognize in him a faithful, efficient, and worthy citizen, and officer of this commission and of the State; that he will be followed into his retirement by the sincerest and best wishes of this commission individually and as a body for continued long life and constant happiness.

At the annual meeting of the commissioners to manage Yosemite Valley and Mariposa Big Tree Grove, held in Yosemite Valley on the 5th day of June, 1897, the above resolutions of said commission were unanimously adopted.

H. J. OSTRANDER,
MAX GOLDBERG,
C. G. GIVENS,
Commissioners.
JAMES H. BUDD,
Governor.
ABBOT KINNIN,
Vice-President.

Attest:
JOHN L. SHEEHAN,
Secretary.

ACCIDENTS AND DEATHS.

A man who had walked into the park in search of work was found lying under a tree sick and removed to the army hospital, where he died on July 9, 1910. Little could be learned about him, except that he came from Coulterville, Cal., and he was buried in the cemetery in Yosemite Valley. His name was Frank Beckerman.

On July 11, 1910, Mr. Leonard L. Lisher accidentally fell from a tree in Yosemite Valley and received injuries from which he died a few hours later in the army hospital. His home was in Napa, Cal., and his remains were removed from the park.

On July 10, 1910, a stage coach went over the steep bank about 1 mile inside the park on the Yosemite-El Portal road and two passengers were seriously hurt.

On October 10, 1910, Henry Eddy, a road laborer in the employ of the Government, was found dead in his tent in the laborers' camp, death being due to natural causes. Efforts were made to communicate with his relatives, but unsuccessfuly, and he was buried in Yosemite Valley.

CAMP YOSEMITE.

Camp Yosemite is the name of the military camp situated about one-fourth mile southwest of the foot of Yosemite Falls.

The War Department is contemplating the installation of a water and sewer system in this camp and the erection of houses for the shelter of the troops.

VISITORS.

Between November 1, 1909, and March 31, 1910, there were 783 visitors to the valley, and between April 1 and September 30, 1910, there were 12,836 visitors to the park, of which number 480 did not come to the valley, an aggregate of 13,619 visitors.

About 10,455 of these visitors were transported by the Yosemite Valley Railroad to El Portal, and by the Yosemite Transportation Company from such terminus, and were distributed about as follows: Sentinel Hotel, 3,886; Camp Curry, 3,119; Camp Lost Arrow, 2,027; Camp Ahwahnee, 1,004; and transient camps, 419.

The following list, though incomplete as to the full number of tourists to the Yosemite National Park, indicates the points in the United States and the foreign countries from which 9,026 of the travelers came:

Residences of visitors to Yosemite National Park.

UNITED STATES.		UNITED STATES—continued.	
Alabama	11	Nevada	31
Arizona	13	New Hampshire	11
Arkansas	5	New Jersey	95
California	6,215	New Mexico	10
Colorado	48	New York	581
Connecticut	33	North Carolina	6
Delaware	7	North Dakota	13
District of Columbia	47	Ohio	135
Florida	8	Oklahoma	19
Georgia	22	Oregon	30
Idaho	6	Pennsylvania	219
Illinois	245	Rhode Island	18
Indiana	59	South Carolina	6
Iowa	55	South Dakota	8
Kansas	20	Tennessee	14
Kentucky	30	Texas	39
Louisiana	12	Utah	16
Maine	10	Vermont	6
Maryland	22	Virginia	15
Massachusetts	193	Washington	87
Michigan	50	West Virginia	5
Minnesota	37	Wisconsin	52
Mississippi	14	Wyoming	9
Missouri	80		
Montana	10	Total	8,708
Nebraska	31		

FOREIGN COUNTRIES.	
Australia	12
Austria	7
Canada	28
China	17
Denmark	1
Germany	56
Great Britain	121
Hawaii	32
Holland	5
Hungary	2
India	4
Italy	2
Japan	3
Mexico	6
Russia	7
Sweden	3
South America	4
Switzerland	5
Philippine Islands	3
Total	318
Grand total	9,026

ESTIMATES.

The following are the estimated expenditures required during the fiscal year ending June 30, 1912:

Estimates for fiscal year ending June 30, 1912.

Pay of 1 supervisor	$1,200
Pay of 1 clerk	1,200
Pay of 1 chief electrician	1,200
Pay of 1 assistant electrician	1,080
Pay of 1 plumber	1,000
Pay of 2 rangers	2,000
For repair of existing roads, trails, bridges, culverts, buildings, plants, fences, camp sanitation, and removal of undergrowth	25,000
For operating road-sprinkling system five months	7,500
For clearing fire guard around Mariposa Big Tree Grove and removing dead timber therefrom	10,000
For residence and office for the superintendent	7,500
For extension of road-sprinkling system to Happy Isles and Fort Monroe	5,000
For material and installation of water-supply system	123,000
For construction of road along south rim of Yosemite Valley from Fort Monroe to Glacier Point	75,000
For widening, straightening, and macadamizing road from Pohono Bridge to El Portal	100,000
For macadamizing road from Yosemite village to Happy Isles along south side of Merced River	20,000
For enlargement and improvement of power plant	20,000
For a reenforced-concrete bridge over the Merced River near the Sentinel Hotel	25,000
For a barbed-wire fence along the western boundary of the park	10,000
For construction of bridge over Tuolumne River in Hetch Hetchy Valley	3,000
For construction of trail from Merced Lake up the Merced River Canyon to the head of the Merced River, about 25 miles	5,000
For construction of trail from the head of Lyell Fork Meadows to the Lyell Glacier, about 8 miles	1,500
For construction of road from the park boundary near the hog ranch to Hetch Hetchy Valley	60,000
For preliminary surveys and investigation of sites for water storage to prevent Yosemite and Bridal Veil Falls from drying up	3,000
Total	508,180

RECOMMENDATIONS.

It is recommended: (1) That the water system and power plant be enlarged and increased; (2) that ample hotel accommodations be provided; (3) that all patented lands in the park be condemned and purchased by the Government; (4) that an appropriation be obtained for the construction of a road from Fort Monroe to Glacier Point along the south rim of the valley (when built it will be for its length one of the most remarkable mountain scenic roads in the world; the survey, location, and all other preliminary work has been completed); (5) that an appropriation be obtained for the completion of the work of widening, straightening, improving the grade, and metaling the El Portal-Yosemite Village road; (6) that the western boundary be fenced; (7) that a permanent army post be established in the park; and (8) that a law be enacted for the government of the Yosemite Park similar to that provided for the Yellowstone Park.

ACKNOWLEDGMENTS.

My heartiest thanks are tendered to Lieut. Hugh S. Johnson, First Cavalry, who performed faithfully and with marked efficiency all the staff duties in the park.

Very respectfully,

Wm. W. Forsyth,
Major, Sixth Cavalry, Acting Superintendent.

APPENDIX A.

REPORT ON ROADS, TRAILS, AND ENGINEERING STRUCTURES.

227 FEDERAL BUILDING,
Spokane, Wash., September 20, 1910.

SIR: In accordance with your verbal instructions of August 30, 1910, the following preliminary report on matters pertaining to the Yosemite National Park is respectfully submitted:

HYDRO-ELECTRIC POWER PLANT.

The present power plant was constructed by the State of California while the Yosemite Park belonged to the State. Briefly, the plant consists of a frame power house with a concrete floor and two Pelton wheels connected to two generators by belting. The penstock is approximately 3,000 feet long, and is made of thin iron approximately one-sixteenth inch thick. It is 22 inches in diameter at the upper end and 24 inches in diameter at the lower end.

The foundations of the generators are very poor. The generators appear to be set on the thin concrete floor, while they should be set upon and thoroughly anchored to a concrete base about 2 feet thick. Set as they are the vibration is very great, with consequent bad operating results. The same conditions also apply to the setting for the Pelton wheels. This defect should be remedied as soon as funds are available. The wiring in the building is poorly done, and the rules of the National Electrical Code seem to have been ignored. The high tension wires in the power house, which now run in small wooden ducts under the floor, should be placed in electric conduit and the building rewired in accordance with the National Electrical Code.

The penstock which brings the water from Merced River to the power house is mild steel pipe about one-sixteenth inch thick. There has long been a strong prejudice among engineers against the use of thin steel water pipe on account of the rapidity with which it rusts out. These pipes were probably used on account of cheapness, lightness, and consequent low cost of transportation, but now that the road from El Portal to this point is in good condition a more substantial pipe should be used to replace the present pipe line, which is in a very bad condition.

For permanence and ultimate cheapness reenforced concrete would be the ideal material, and it is my opinion that a 30-inch reenforced pipe line can be installed for less than $6 per linear foot. Next to reenforced concrete I would recommend a wooden stave pipe of circular section, as this is without doubt the most efficient and cheapest of all the forms. After these I would recommend an iron pipe not less than one-eighth inch thick.

If a new pipe line is installed the pipes should be skillfully placed, abrupt changes in the grade should be avoided, and the horizontal angles should be as few and as easy as possible, no matter what class of material is decided upon. Where the pipe line appears above the surface it should be properly anchored.

If the present pipe line at the intake is repaired, I recommend using the iron pipe already purchased and at the site. During the time I was in the park, from September 8 to 12, a crew of men were employed in constructing this pipe line and intake for approximately 500 linear feet. These men were working under the direction of a foreman, with no one to establish the grades. There were no plans or specifications, other than a crude pencil sketch. It is very unsatisfactory to start a piece of work before definite plans have been worked out, and the result is sure to be confusing and costly work. An engineer should be on the ground continually while such work is in progress in order to lay out the work and give advice to the workmen. I ran levels over this line and set grade stakes for the foreman so that he could excavate the ditch to approximate grade. When this is complete an engineer should be on the ground to work out the details and give the workmen the exact grades for the invert of the pipe, gate setting, etc. The location of the new intake has little or no advantage over the old one.

PROPOSED SEWER SYSTEM.

The present system of sewage disposal from the principal camps on the floor of the valley, such as Camp Yosemite and Camp Curry, seems to be a broad irrigation system, while the sewage from the main village, the principal nucleus of which is at the Sentinel Hotel, is discharged into Merced River. This system appears to be working satisfactorily for the present, but the conditions become worse each year, as the system is only a makeshift and is not suited to the surrounding conditions. The only logical thing to do is to put in a permanent sewer system, discharging into Merced River below El Capitan Bridge; that is, below the principal camping grounds of the floor of the valley.

As a general outline of such a system I recommend that an 8-inch terra-cotta or cement pipe line (whichever seems most satisfactory and economical under local conditions) be run from Kinneyville on the north side of Merced River to a point below El Capitan Bridge, this line to be so located as to carry the sewage of the valley from Merced River to the hill on the north, and thus avoid crossing and recrossing Merced River. This line should be so located that the laterals will be as short as possible, and it should be deep enough to drain all camps and buildings on that side of the river. Suitable flush tanks should be provided and manholes should be installed at all angle points and at intervals of perhaps 300 or 400 feet on tangent. Plugged Y's should be installed at fixed intervals to allow for future house and lateral connections. As Kinneyville will be a dead end, the sewer should be kept at such a depth that it can at any time it is desired be extended east to sewer the valley upstream on Merced River.

I also recommend the construction of an 8-inch line beginning at Yosemite village and running down the south side of Merced River and discharging into the river below El Capitan Bridge. If desirable, the sewage from such a system can be given septic treatment to remove noxious matter before being discharged into Merced River.

This, of course, would not render the lower waters of Merced River fit for human consumption, but it would clarify the water and probably make it less harmful for the fish. Such a sewer system in this locality would probably cost in the neighborhood of $45,000.

In connection with the proposed sewer system I recommend the following: That the Director of the Geological Survey prepare a working map from the notes of the survey on a scale of 50 feet to 1 inch, and that an engineer be sent to the park to work out the details of a complete sewer system. A portion of such a system could be built each year as Congress appropriates funds. The engineer should take charge of all engineering work in the park, under the direction of the superintendent. What is needed is not so much reports and recommendations as an engineer who, after careful study and surveys, would prepare plans and supervise the work. A competent engineer would more than save his salary each year and at the same time relieve the superintendent of a great deal of work which he ought not to be expected to perform.

WATER SUPPLY.

The source of the present water supply is a large spring near the foot of Glacier Point. The quality of this water is good, but the quantity is limited and insufficient to supply the growing needs of the valley. I recommend that the upper reaches of Merced River be carefully protected against pollution and made the source of water supply for the floor of the valley. To this end the new pipe line for the power plant should be large enough, not only to develop all the power which will be needed in a reasonable future, but to afford an adequate supply for domestic use, fire protection, sprinkling, and the flushing of the proposed sewer system. If this is done it will eliminate practically 3,000 linear feet of the proposed water main.

In connection with such a system it might be well to consider the installation of a settling basin, in the form of a large well, to clarify the turbid water of the river during flood before it is used for domestic purposes. Of course, such a settling basin should have been considered in conjunction with the installation of the new intake, but the present work is too far advanced to consider such a scheme at this time. This fact illustrates the wisdom of always having complete and comprehensive plans before construction is begun, even if funds are not available to complete the entire project at once.

The present water-supply system is not only inadequate, but it is constructed of the very cheapest materials, and is leaking and inefficient, requiring constant repairs. When the new system is installed I recommend first-class materials and workmanship, cast-iron pipes for the mains, and first-class hydrants where hydrants are necessary. If funds are not available for construction of the entire system, as large a portion as possible should be constructed in a first-class manner.

ROADS.

In accordance with your verbal instructions I consulted with Maj. William W. Forsythe, acting superintendent of the park, in regard to the roads and other subjects treated in this report. Unfortunately Major Forsythe was called away on official business while I was in the park, and I did not have an opportunity to go over all of the matters with him as fully as I should have liked.

Before any extensive highway construction is started (other than the annual repair to roads, trails, etc.) proper surveys should be made, and a complete and comprehensive general road system should be worked out, with proper plans and specification. If the appropriations made by Congress are insufficient to carry out the entire plans, then so much thereof should be constructed each year as funds are available for, but each year's construction should be some unit of the general road and trail plan. Only first-class modern construction should be employed. Until such a general road plan is completed it would be well to concentrate the available funds on the reconstruction of the road from the park boundary above El Portal to the Yosemite Valley, as the location of this road is practically fixed by the great amount of work which has already been performed upon it, and to general repairs of existing roads and trails. Therefore in the absence of a general road plan and in view of the fact that the El Portal-Yosemite road is probably the most important and urgent road, this will be discussed.

The El Portal road follows the right bank of Merced River from El Portal for a distance of approximately 10 miles, to the Pohono Bridge; thence it follows the left bank of the river to the Sentinel Hotel, a distance of approximately 5 miles. The lower 10 miles of this road has approximately 3 miles of steep, hillside road and about 7 miles of road through large granite bowlders. At the present time this road would be very dusty if it were not for the constant sprinkling. When the decomposed granite rock which forms the roadbed becomes dry, the roadbed consists of loose dirt for a considerable depth; teams have difficulty in pulling through it. This material, which is a nuisance in the road now, could by proper treatment with asphalt oil, such as "Petrolithic," be made into a first-class road; and at the same time practically all the dust would be done away with. At any rate it is certainly worth investigating, and this matter will be discussed further in this report.

At precipitous places the macadamized section of this road should be 20 feet wide; where the topography permits, and this is probably 12 of the 15 miles, a sectional width of 16 feet is sufficient. At the present time this road is too narrow in places, and the grades are bad.

In the reconstruction of the El Portal-Yosemite road, as well as the other roads of the park, to be included in the general road plan referred to elsewhere in this report, I strongly recommend careful consideration of some form of an oiled macadam road. By this term I do not mean the ordinary form of macadam road, the surface of which is merely sprinkled with oil, but a macadam road whose integral parts are thoroughly bonded and held together by asphaltum oil, something in the nature of an oiled concrete.

Two forms of this class of road are now being successfully constructed, the cost of which exceeds the cost of the ordinary macadam road by the price of the asphaltum oil and its application to the road. As the Yosemite Park is in comparatively close proximity to the oil fields where, perhaps, the best class of oil for this purpose is produced, the cost of construction should not be increased very materially.

Both classes of roads known as "Petrolithic" and "Oileroid" are patented processes upon which a royalty of 25 cents per square yard is charged. This would make such roads cost not to exceed $1.25 per square yard for surfacing, and it is my judgment that such roads could be constructed in the park for $1 per square yard and possibly less than this for the surfacing, including the royalty. This is about what ordinary macadam would cost.

The available rock to be found generally throughout the park is of a very poor quality for the ordinary macadam highway. In fact, the only material which I saw in the park that is suitable for first-class macadamized highway is that near the present crushing plant, If this is the only suitable material, it would necessarily have to be hauled long distances and thereby make the cost of construction excessive. It is with the idea of utilizing material to be found along the right of way that the oiled macadam road above referred to is suggested, and it is my opinion that by using the above-mentioned processes a first-class highway can be constructed from the material procured along the entire length of this road.

I believe that by constructing the asphalt macadam highway the dust nuisance will be practically overcome, or at least the cost resulting from it will be greatly diminished. The estimated cost of sprinkling the El Portal road, as given in the report of the acting superintendent of the Yosemite National Park, for 1909, is $18,080. If an oiled macadam road would save this amount its construction is certainly worth investigating.

If there is any question regarding the suitability of this class of roads to the conditions existing in the park, I suggest that a short stretch of this road be constructed in order to give it an actual trial.

YOSEMITE FALLS.

While in the park I made a reconnoissance of the country immediately adjoining the Yosemite Falls with the idea of providing storage so that the falls could be kept flowing during the period of the year through which they are now dry. The country north of the Yosemite Falls rises so fast that a dam of unreasonable height and cost would be necessary to keep the falls in operation for even a very short period. I also investigated the feasibility of operating the falls by means of water from Tenaya Lake. While it is physically posble to bring such water as is at present stored in Tenaya Lake, for the time being at least it is impracticable. I understand that a reconnoissance of this project was made by the Geological Survey, and I suggest that a report therefrom might be of use to you if you desire to further investigate the matter.

CONCLUSIONS AND RECOMMENDATIONS.

The following recommendations are made: (1) That a complete and comprehensive road and trail plan for the entire park be prepared, and that the roads and trails be constructed as fast as funds are available. (2) That plans and specifications be prepared for an adequate water supply for the floor of the valley. (3) That the present penstock and power plant be repaired along the lines set forth in this report and that they be of ample capacity for the needs of the park. (4) That there be prepared plans and specifications for a complete and comprehensive sewer system for the floor of the valley.

The work should receive attention in the following order: 1. The power house and its accessories. 2. The water-supply system. 3. The sewer system. 4. The reconstrucion of the El Portal-Yosemite road.

Very respectfully,
E. A. Keys,
Special Inspector.

The Secretary of the Interior.

APPENDIX B.

RULES AND REGULATIONS OF JUNE 1, 1909.

The following rules and regulations for the government of the Yosemite National Park, including the Yosemite Valley and Mariposa Big Tree Grove, are hereby established and made public, pursuant to authority conferred by the acts of Congress approved October 1, 1890, February 7, 1905, and June 11, 1906:

1. It is forbidden to injure or disturb in any manner any of the mineral deposits, natural curiosities, or wonders on the government lands within the park.

2. It is forbidden to cut or injure any timber growing on the park lands, or to deface or injure any government property. Camping parties will be allowed to use dead or fallen timber for fuel. When felling timber, stumps must not be left higher than 12 inches from the ground.

3. Fire should be lighted only when necessary and completely extinguished when not longer required. The utmost care must be exercised at all times to avoid setting fire to the timber and grass.

4. Hunting or killing, wounding or capturing, any bird or wild animal on the park lands, except dangerous animals when necessary to prevent them from destroying life or inflicting an injury, is prohibited. The outfits, including guns, traps, teams, horses, or means of transportation used by persons engaged in hunting, killing, trapping, ensnaring, or capturing such birds or wild animals, or in possession of game killed on the park lands under other circumstances than prescribed above, will be taken up by the superintendent and held subject to the order of the Secretary of the Interior, except in cases where it is shown by satisfactory evidence that the outfit is not the property of the person or persons violating this regulation and the actual owner thereof was not a party to such violation. Firearms will only be permitted in the park on written permission from the superintendent thereof. On arrival at the first station of the park guard, parties having firearms, traps, nets, seines, or explosives will turn them over to the sergeant in charge of the station, taking his receipt for them. They will be returned to the owners on leaving the park.

5. Fishing with nets, seines, traps, or by the use of drugs or explosives, or in any other way than with hook and line, is prohibited. Fishing for purposes of merchandise or profit is forbidden. Fishing may be prohibited by order of the superintendent in any of the waters

of the park, or limited therein to any specified season of the year, until otherwise ordered by the Secretary of the Interior.

6. No person will be permitted to reside permanently, engage in any business, or erect buildings, etc., upon the government lands in the park without permission, in writing, from the Secretary of the Interior. The superintendent may grant authority to competent persons to act as guides and revoke the same in his discretion. No pack trains will be allowed in the park unless in charge of a duly registered guide.

7. Owners of patented lands within the park limits are entitled to the full use and enjoyment thereof; such lands, however, shall have the metes and bounds thereof so marked and defined that they may be readily distinguished from the park lands. Stock may be taken over the park lands to patented lands with the written permission and under the supervision of the superintendent.

8. The herding or grazing of loose stock or cattle of any kind on the government lands in the park, as well as the driving of such stock or cattle over the same, is strictly forbidden, except in such cases where authority therefor is granted by the superintendent.

9. No drinking saloon or barroom will be permitted upon government lands in the park.

10. Private notices or advertisements shall not be posted or displayed on the government lands within the reservation, except such as may be necessary for the convenience and guidance of the public.

11. It is forbidden to carve or write names or otherwise deface any of the posts, signboards, platforms, seats, railings, steps, bowlders, trees, or structures of any kind in the park.

12. Persons who render themselves obnoxious by disorderly conduct or bad behavior, or who may violate any of the foregoing rules, will be summarily removed from the park and will not be allowed to return without permission, in writing, from the Secretary of the Interior or the superintendent of the park.

No lessee or licensee shall retain in his employ any person whose presence in the park shall be deemed and declared by the superintendent to be subversive of the good order and management of the reservation.

13. The superintendent designated by the Secretary is hereby authorized and directed to remove all trespassers from the government lands in the park and enforce these rules and regulations and all the provisions of the acts of Congress aforesaid.

INSTRUCTIONS OF JUNE 1, 1909.

(1) Interference with or molestation of any bear or other wild animal in the park in any way by any person not authorized by the superintendent is prohibited.

(2) *Fires.*—The greatest care must be exercised to insure the complete extinction of all camp fires before they are abandoned. All ashes and unburned bits of wood must, when practicable, be thoroughly soaked with water. Where fires are built in the neighborhood of decayed logs, particular attention must be directed to the extinguishment of fires in the decaying mold. Fire may be extinguished where water is not available by a complete covering of earth well

packed down. Care should be taken that no lighted match, cigar, or cigarette is dropped in any grass, twigs, leaves, or tree mold.

(3) *Camps.*—No camp will be made except at designated localities. All campers in Yosemite Valley shall first report at the office of the superintendent for assignment to camping sites, and will not change camps without permission, nor shall fires be lighted in Yosemite Valley or Mariposa Big Tree Grove without the express permission of the superintendent. Blankets, clothing, hammocks, or any other article liable to frighten teams must not be hung near the road. The same rule applies to temporary stops, such as for feeding horses or for taking luncheon.

Many successive parties camp on the same sites during the season, and camp grounds must be thoroughly cleaned before they are abandoned. Tin cans must be flattened and, with bottles, cast-off clothing, and all other débris, must be deposited in a pit provided for the purpose. When camps are made in unusual places where pits may not be provided, all refuse must be hidden where it will not be offensive to the eye.

(4) *Bicycles.*—The greatest care must be exercised by persons using bicycles. On meeting a team the rider must stop and stand at side of road between the bicycle and the team—the outer side of the road if on a grade or curve. In passing a team from the rear, the rider should learn from the driver if his horses are liable to frighten, in which case the driver should halt and the rider dismount and walk past, keeping between the bicycle and the team.

(5) *Fishing.*—All fish less than 6 inches in length should at once be returned to the water with the least damage possible to the fish. No one person shall catch more than fifty fish in one day.

(6) *Dogs.*—Dogs are not permitted in the park.

(7) *Stages.*—Stages entering Yosemite Valley shall stop at each hotel or permanent camp in the order of location so that passengers may exercise the right of selection.

(8) *Driving on roads of park.*—(*a*) Drivers of vehicles of any description, when overtaken by other vehicles traveling at a faster rate of speed, shall, if requested to do so, turn out and give the latter free and unobstructed passageway.

(*b*) Vehicles, in passing each other, must give full half of the roadway. This applies to freight outfits as well as any other.

(*c*) Freight, baggage, and heavy camping outfits on sidehill grades throughout the park will take the outer side of the road while being passed by passenger vehicles in either direction.

(*d*) Transportation companies, freight and wood contractors, and all other parties and persons using the park roads will be held liable for violations of these instructions.

(*e*) Mounted men on meeting a passenger team on a grade will halt on the outer side until the team passes. When approaching a passenger team from the rear warning must be given, and no faster gait will be taken than is necessary to make the passage, and if on a grade the passage will be on the outer side. A passenger team must not be passed on a dangerous grade.

(*f*) All wagons used in hauling heavy freight over the park roads must have tires not less than 4 inches in width. This order does not apply to express freight hauled in light spring wagons with single teams.

(9) *Miscellaneous.*—Automobiles and motor cycles are not permitted in the park.

No person shall ride or drive faster than a walk over any of the government bridges within the park. Riding or driving at night, except on the floor of the Yosemite Valley, is forbidden.

Persons with animals using trails must keep therein; leaving the trails for the purpose of making short cuts will not be permitted.

Persons are not allowed to bathe near any of the regularly traveled roads in the park without suitable bathing clothes.

Campers and all others, save those holding license from the Secretary of the Interior, are prohibited from hiring their horses, trappings, or vehicles to tourists or visitors in the park.

All complaints by tourists and others as to service, etc., rendered in the reservation should be made to the superintendent in writing before the complainant leaves the park.

(10) The penalty for disregard of these instructions is summary ejection from the park.

REGULATIONS OF FEBRUARY 29, 1908, GOVERNING THE IMPOUNDING AND DISPOSITION OF LOOSE LIVE STOCK.

Horses, cattle, or other domestic live stock running at large or being herded or grazed in the Yosemite National Park without authority from the Secretary of the Interior will be taken up and impounded by the superintendent, who will at once give notice thereof to the owner, if known. If the owner is not known, notice of such impounding, giving a description of the animal or animals, with the brands thereon, will be posted in six public places inside the park and in two public places outside the park. Any owner of an animal thus impounded may, at any time before the sale thereof, reclaim the same upon proving ownership and paying the cost of notice and all expenses incident to the taking up and detention of such animal, including the cost of feeding and caring for the same. If any animal thus impounded shall not be reclaimed within thirty days from notice to the owner or from the date of posting notices, it shall be sold at public auction at such time and place as may be fixed by the superintendent after ten days' notice, to be given by posting notices in six public places in the park and two public places outside the park, and by mailing to the owner, if known, a copy thereof.

All money received from the sale of such animals and remaining after the payment of all expenses incident to the taking up, impounding, and selling thereof, shall be carefully retained by the superintendent in a separate fund for a period of six months, during which time the net proceeds from the sale of any animal may be claimed by and paid to the owner upon the presentation of satisfactory proof of ownership, and if not so claimed within six months from the date of sale such proceeds shall be turned into the Yosemite National Park fund.

The superintendent shall keep a record in which shall be set down a description of all animals impounded, giving the brands found on them, the date and locality of the taking up, the date of all notices and manner in which they were given, the date of sale, the name and address of the purchaser, the amount for which each animal was sold and the cost incurred in connection therewith, and the disposition of the proceeds.

The superintendent will, in each instance, make every reasonable effort to ascertain the owner of animals impounded and to give actual notice thereof to such owner.

PENALTY FOR INJURING TREES AND FOR NOT EXTINGUISHING FIRES.

[Excerpt from an act entitled "An act to provide for determining the heirs of deceased Indians, for the disposition and sale of allotments of deceased Indians, for the leasing of allotments, and for other purposes," approved June 25, 1910 (36 Stat., 857).]

SEC. 6. That section fifty of the act entitled "An act to codify, revise, and amend the penal laws of the United States," approved March fourth, nineteen hundred and nine (Thirty-fifth United States Statutes at Large, page one thousand and ninety-eight), is hereby amended so as to read:

SEC. 50. Whoever shall unlawfully cut, or aid in unlawfully cutting, or shall wantonly injure or destroy, or procure to be wantonly injured or destroyed, any tree, growing, standing, or being upon any land of the United States which, in pursuance of law, has been reserved or purchased by the United States for any public use, or upon any Indian reservation or lands belonging to or occupied by any tribe of Indians under the authority of the United States, or any Indian allotment while the title to the same shall be held in trust by the Government, or while the same shall remain inalienable by the allottee without the consent of the United States, shall be fined not more than five hundred dollars, or imprisoned not more than one year, or both.

That section fifty-three of said act is hereby amended so as to read:

SEC. 53. Whoever shall build a fire in or near any forest, timber, or other inflammable material upon the public domain, or upon any Indian reservation, or lands belonging to or occupied by any tribe of Indians under the authority of the United States, or upon any Indian allotment while the title to the same shall be held in trust by the Government, or while the same shall remain inalienable by the allottee without the consent of the United States, shall, before leaving said fire, totally extinguish the same; and whoever shall fail to do so shall be fined not more than one thousand dollars, or imprisoned not more than one year, or both.

REPORT OF THE ACTING SUPERINTENDENT OF THE SEQUOIA AND GENERAL GRANT NATIONAL PARKS.

REPORT OF THE ACTING SUPERINTENDENT OF THE SEQUOIA AND GENERAL GRANT NATIONAL PARKS.

SEQUOIA AND GENERAL GRANT NATIONAL PARKS,
OFFICE OF SUPERINTENDENT,
Three Rivers, Cal., October 15, 1910.

SIR: I have the honor to make the following report on the condition of affairs and the management of the Sequoia and General Grant national parks:

GENERAL CONDITIONS.

The rainfall during the winter of 1909–10 was below the average and there was less snow in the parks and surrounding country than there had been for many winters. Repair work on the roads and trails was begun in April, under the direction of Mr. Walter Fry, the ranger in charge, and they were found in good condition May 31, upon the arrival of Troop A, First Cavalry, 3 officers and 50 men, for duty in the parks, except the little-used Halstead Meadow trail and a few others.

The troop was accompanied by a surgeon, and was provided with the usual hospital, supply, and transportation service. Camp was established on the Giant Forest road at the Marble Fork Iron Bridge, a good camp site and altogether the best one in the present state of development of the parks. The War Department has under consideration the building of a temporary post on this ground. It is on private land, which should be purchased by the Government. Outposts of 3 men each (sometimes 2) were put at the five more important entrances to Sequoia Park and at the crossroads in Grant Park. Those on duty at the main gate and on the South Fork trail were located at Rocky Gulch and Clough Cave, at both of which places ranger cabins are available in the summer time. The unfinished road leading to the Mount Whitney Power and Electric Company's dam on the Middle Fork was guarded at the Elk Park gate, which was kept locked. The outposts on the Mineral King road were located up the East Fork, at Cold Spring, on the west line of the park, and at the site of the old Weishar sawmill, near the east line of the park. A similar detachment was maintained at Kaweah as a subsidiary supply and relay station. All of the detachments were under canvas except that at Rocky Gulch. All of the stations were frequently inspected, and all roads and trails were patroled from the several stations, as well as by officers and special patrols from the main camp and by the five rangers. Mr. Decker, in Grant Park, and Messrs. Blossom, in the southwest, with headquarters at Hockett Meadows, Britten, in the southeast, at Quinn, and Grunigen, in the north, at Giant Forest, all performed their duties with zeal, while Mr. Fry rode 500 miles a month in connection with and in addition to his supervision of improvement work. Park service was new to the troopers, except a very few; but all of them, as well as the noncommissioned staff and the civilian employees, entered with spirit and intelligence into the details of field work and camp routine. The untiring cooperation of all the officers—First Lieut. David L. Roscoe, First Cavalry; First Lieut. Charles L. Baker, Medical Reserve Corps; and Second Lieut. John C. Pegram, First Cavalry—both in the affairs of the parks and in all matters of camp management, was of material assistance in the administration of the parks.

TOURISTS, TRAVEL, AND ACCOMMODATIONS.

In addition to the park employees and the Mount Whitney Company's road crew, a small number of persons entered the parks before the 1st of June, but the 15th of that month marked as usual the opening of the tourist season, Sequoia having in all 415 visitors by the end of June, 681 in July, 1,161 in August, and 150 to September 15, when the troops left the park at the close of the season, a total of 2,407. The figures for Grant Park are 361 in June, 521 in July, 266 in August, and 30 to September 15, a total of 1,178. The total for the two parks was 3,585. Many persons use their own transportation, mostly vehicles of various descriptions, some ride, and a few, very few, walk; more will come afoot when the railroad lays its next 10 or 12 miles of track to Three Rivers and the easy grades of the principal trails become known. Tourists generally throughout the season showed a gratifying disposition to observe the park rules and regulations. They seemed to enjoy the park thoroughly, and took frequent occasion to comment upon the good behavior and courteous attention of soldiers and rangers. There is a hotel at Lemoncove, the present railroad station for Sequoia Park. The River Inn, built last winter at the iron bridge a mile above Three Rivers and opened in May, is also a convenient stopping place. It had 500 guests during the past season, most of them either entering or leaving the park. The Tent Hotel Company entertained as many at Camp Sierra, in the Giant Forest. The transportation company carried 150 persons to Ranger. There is telephone service at Ranger connecting with long distance, and triweekly mail, which should be made a daily service. Hundreds of people enter the park at Cold Spring en route to Mineral King and the country beyond, and at the east line upon their return. A few have built frame or log houses for their summer use at the site of the abandoned Mineral King mining camp. The vicinity of Atwells Mill, on deeded land on the Mineral King road just inside the east line, is also a resort. There are no hotel accommodations and no feed for animals to be had at either of these two places. There is mail service at both, and telephone service at Atwells Mill. An attractive horseback tour with numerous opportunities for side trips is up the South Fork from Three Rivers, past Clough Cave, in sight of Homers Nose, through the magnificent Garfield Grove of Sequoias to the Hockett Meadows, thence through or near Mineral King, past Alta Peak to the Giant Forest, and on to the Kings River country or to Grant Park. Another tour starting from Three Rivers is through or near Quinn into the Kern River country, and on to Mount Whitney. In a great part of this country wagon roads could be made, some of the existing trails need improvement, and new trails should be located. The parks with their present narrow limits cover but a small part of the territory which should be included in one park. There is not as much tourist travel between Grant and Sequoia as there probably would be if the intervening area was park land; then a wagon road could be planned to connect them. Grant Park has telephone, daily mail, a store, and tent hotel accommodations, and was opened September 6 to automobiles and motor cycles. There is a store at Ranger and also a feed yard. There is no mail contract for the new post-office, General Grant National Park, the mail having been regularly delivered and taken up there for the accommodation of tourists this summer through the courtesy of Mr. M. C. Griggs, the contractor for Badger, Cal.

IMPROVEMENT WORK.

The telephone line was extended 10 miles along the Mineral King road to Weishar Mill; as a measure of fire protection it would be well to have additional stations near Stony Creek, Twin Lakes, and Buck Canyon. The whole system is single wire; a second wire should be put up, and in a number of places where it is far from the road and difficult of access the line should be replaced by one along the road. Six miles of the new trail from Cold Spring south and Clough Cave north were completed on good grade up the divide between these two places. Palmer Cave, which is reached by this trail near Surprise Spring, was entered by an exploring party, which had to descend 60 feet from the opening at the surface by means of a spliced fir staff of that length lowered vertically to the rock floor below and fixed to timbers across the mouth of the cave; no extensive chambers or passageways were found; the men climbed out by means of cleats nailed to the staff by the first man up. Two horse pastures, one of 30 acres at Hockett Meadows and one of 27 acres at Quinn camp, were inclosed with a woven-wire field fence so constructed that it can be released from its holdings and laid on the ground to prevent damage from snow. The Round Meadow road in Grant Park was completed by making a culvert at the meadow. This road and the Millwood road form the automobile route between the northwest and the north gates; wagons do not have to use this route except for a short distance west of the crossroads and again near the north gate, both of which places are on good grade and quite safe, though the routes could be made entirely separate by a little additonal road-building. In the same park a post-office building has been erected and 1,100 feet of water pipe have been received, which gives promise of a much-needed water system. The improvement work generally was satisfactory; the working parties fared well, took good care of their camps, and went about their work energetically.

CONCESSIONS AND IMPROVEMENTS ON PRIVATE LANDS.

The several concessions all merit renewal for next year. Mr. Cooksey, at Grant Park, plans putting up more tents, raising the tents on platforms, and increasing the size of his dining-room. Mr. Eddy, the photographer at Ranger, will advertise Sequoia Park with views at his studio in Visalia during the ensuing winter. Mrs. Keller's store and feed yard at Ranger met all demands. The River Inn Hotel Company has built a restaurant and a storehouse on private land at Camp Sierra, and proposes to begin extensive improvements next spring, including a main hotel building, cottages, hot and cold baths, pavilions and amusement features; this company has had a survey made of 120 acres of private land, which, in addition to 20 acres of park land, it intends to utilize for these improvements. Reservoirs should be built over the springs, which are on park land that is not included in the hotel company's concession, and which furnish all of the water for the camp there, including post-office, ranger's quarters, and the public camp ground. It is recommended that these reservoirs be built of stone, from next year's appropriation. Improvemnts are projected near Oriole Lake on the Ogilvie tract lying just within the park line; this tract, 160 acres, has been surveyed and a company formed to manage a resort there; a sawmill has been hauled in, and it is designed to cut timber on the private land, build there and establish a lumber business as well as a summer and winter resort, to be called Oriole Lodge. A mill is talked of, to be put on private land on the Mineral King road, for the cutting of wood for lead pencils. The Mount Whitney Power and Electric Company has in view two storage reservoirs on the upper waters of the Marble Fork and a diversion dam below the falls; this company has extended its road 7,200 feet to Tharp Creek. The road is excellently constructed on good grades up the north side of the Middle Fork and will eventually prove an important element of the Park road system. Various interests are agitating the construction of four county roads, which would be of great benefit to the park: (1) A new road along the south side of the East Fork to replace the present hilly, rocky, and difficult roadway from the foot of River Hill to Grunigen's, or a reconstruction of the River Hill section, with a convenient extension to the head of Coffee Pot Canyon for the purpose of getting out timber from that locality; (2) a road up the ridge south of Salt Creek to the head of Coffee Pot Canyon, which would probably be the most direct route to the Pinery; (3) a road from Three Rivers on high ground by way of Horn Mountain to the head of Coffee Pot Canyon, which would provide a fine scenic approach to the southern part of the Sequoia Park; (4) a road along high ground from Happy Gap to Grant Park. The Visalia Electric Railway Company contemplates an extension from Lemoncove to Three Rivers.

GRAZING.

The River Inn Company grazed 10 milch cows and 20 beef cattle on private meadows in the Giant Forest for the purpose of supplying Camp Sierra and the military camp. At Cold Spring 655 head of cattle were admitted in five droves between June 27 and July 7, en route to grazing places as far east as the Kern. Tourists in the Kern country find scant feed for their stock; a few thousand head of cattle are driven in there every year from the south, but the grazing is not important, some of the cattlemen themselves being disposed to abandon the ranges, while without the cattle travelers would find plenty of feed for animals. They are attracted there by famous fishing grounds. Until very recent years all the golden trout in the world were there. All the upper country of the Kern, including Mount Whitney to the Inyo County line, ought to be included in Sequoia Park.

WEATHER CONDITIONS.

In accordance with the custom of past years the tourist season closed September 15; a few tourists continued going in on all the roads at intervals during the rest of the month and one party is still in the Giant Forest. The road has been ditched for winter as far down as the Marble Fork Bridge, where the floor is next to be taken up. Weather conditions continued perfect and travel delightful until October 10, when a general rain, with snow in the high elevations set in, lasting three days and nights with brief intervals. To-day it is clear, with prospects of continued fair weather and moderate temperature. Silliman Crest is white; the snow lies 3 feet deep on the level at Mineral King and 10 feet in drifts, and a hunting party just returned reports the weather bitter cold over Franklin Pass. The nights are always cold at Hocket Meadows, but the days there now are fine. There is 6 inches of snow in the Giant Forest.

This was a dry year. Except a few days in the second week in July there was no rain all summer until the middle of September, when a steady though gentle and warm rain fell from the 13th to the 15th; the roads were very dusty throughout the season except after the July rains, but they were never better than they were late in September. The forest growth did not suffer; here and there were isolated pines dead and dying from some disease, not from the drouth; everywhere the new growth was healthy and vigorous. The streams, however, except a few near Three Rivers and in some other places where there must have been a local excess of precipitation or the moisture better held, ran lower than they had ever been known to do before, and some for the first time ran dry.

FIRES.

There were no fires during the fiscal year ended June 30, 1910. This year there have been seven, three of which, however, did not spread and two were outside of the parks, as follows:

July 8–14.—In the brush and live oaks on the slopes below and east of Moro Rock, caused by blasting on the power company's new road; valuable pine and other timber was saved by hard work day and night by soldiers, rangers, and civilians, and the Giant Forest itself was threatened, but the actual damage to timber was slight, the greatest harm being done, however, is the exposure of the steep slopes to erosion through denudation of a thousand acres of watershed of scrub growth which in a few years will be renewed. This is the first fire of any consequence that has occurred in either of the parks since their creation. The Mount Whitney Power and Electric Company assumed the expense of fighting the fire, except the part borne by the public services, although theretofore fires in the mountains had been fought by volunteers from the neighboring settlements without pay, and the power company had once lost heavily from a fire not attributable to its employees. It appears that all reasonable precautions were taken under the company's published rules to prevent the occurrence and spread of fire and that the fire was accidental and unavoidable. The loss to the company, including wages, meals, and transportation, is reported to be $2,000.

July 18–21.—On the Halstead Meadow trail a log was struck by lightning; no damage.

July 19–25.—In Salt Creek Pinery, 2½ miles west of the park line; cause, lightning; area burned over, about 400 acres; no damage to park timber; soldiers and rangers assisted in fighting the fire.

July 20.—At mouth of Deer Creek; cause not known, probably a cigarette or match dropped by a soldier or civilian employee; extinguished in a few minutes when it had spread over about 80 square yards; no damage.

July 20.—At Big Spring, on the South Fork trail; cause not known; discovered by a chance traveler and put out without further assistance when it had burned a few feet; no damage.

July 22–23.—Near Grant Park, 2 miles west of the line; cause, lightning; no damage; the ranger assisted the fire fighters.

July 24–26.—Near Summit Meadow, on the south line; caused by lightning; burned several hundred small firs; no damage to park timber; discovered and checked by two rangers after a hard fight.

The following instructions for the prevention and fighting of forest fires, prepared July 1 by First Lieut. D. L. Roscoe, First Cavalry, fire marshal, were put into effect:

HOW TO PREVENT FOREST FIRES.

1. Never drop burning matches, cigars, nor cigarettes on the ground, and be careful where you empty your pipes.
2. Never make a larger fire than is necessary and never leave it, even for a short time, until it is entirely extinguished. Watch your sparks carefully; everything is very dry and a small spark may start a great conflagration.
3. Fires should be built in open places, near water, first removing all trash and everything inflammable. Fires should be built in holes, especially in windy weather.
4. Be sure that not a spark remains when you break camp, for fire frequently travels along resinous roots, sometimes a foot or two under the ground.

HOW TO FIGHT FOREST FIRES.

A fire is more easily controlled on top of a hill or ridge than on a hillside.

Streams, roadways, trails, open and rocky places are natural barriers, and such features should be utilized by removing all brush, logs, trash, and other articles that might assist the fire in jumping across them to unburned territory. Such places are useful from which to start back fires. This should be done at night or at other times when the wind is favorable and must be done with great care. It is dangerous to start back fires in the morning or during the heat of the day. Back fires and fire breaks should be patrolled constantly until all danger is past. A new fire frequently springs up after the old one has ceased smoking, and the patrol should be continued at intervals for several days after the fire is believed to have been extinguished.

Explosives used in back firing should be handled by experienced men, and care should be taken that no new fires are started thereby.

If time permits and men and implements are available, an open roadway or trail should be cut through the forest and a ditch deep enough to reach through all inflammable matter dug along this opening. Brush, logs, etc., should be removed from both sides of this ditch. This makes an efficient fire break, but it must be patrolled as long as the least sign of fire is visible. Such a fire break is an excellent place from which to start a back fire.

The best place to dig a ditch is along top of ridges, or follow from open place to rocky ledges, etc. Entirely inclose the fire with either natural or artificial barriers.

Spades, shovels, axes, chains, ropes, and horses provided with harness and packs for carrying food and water are essential in fighting forest fires. Well-filled water bags or canteens are very necessary, for fighting fire is hot work, and much suffering may be prevented by having a supply of drinking water at hand.

Forest fires should be fought vigorously from the moment they are discovered in order that they may not get beyond control. They increase rapidly, and the more men that can be obtained the better. Wet grain sacks are especially useful in beating down grass fires, and green brush may be used effectively for the same purpose.

DUTIES OF CITIZENS, CAMPERS, AND TOURISTS.

It is the duty of all citizens, campers, and tourists not only to obey these regulations implicitly, but to report all fires, however small, promptly.

To extinguish such fires as are not beyond their control and to lend a willing hand to check and prevent in every way possible the tremendous annual wastes in the national forests and parks. Whoever shall prevent the destruction of a single tree will have performed a distinct service to the country and to each and every citizen thereof.

DUTIES OF FIRE WARDENS.

All fire wardens have powers of peace officers to make arrests without warrant for the violation of any state or federal forest law, and no fire warden is liable to civil action for trespass committed in the discharge of his duty.

All fire wardens who may become possessed of any information that shows with reasonable certainty that any person has violated any provisions of the forest laws will immediately take action against the offender and will obtain all possible evidence pertaining thereto.

When practicable, soldiers and rangers will first report offenders to the park superintendent, but if such report is not practicable they will enforce the law, using such force as may be necessary, and report their action to the superintendent as soon thereafter as possible.

The names of all persons violating any of the park rules will be taken, the nature of the offense committed set opposite their names, and they will be barred from again entering the park without permission, in writing, from the Secretary of the Interior or the superintendent of the park.

Both sides of the road for a distance of 150 feet, the trails and ground around the big trees, both standing and down, should be cleared of logs, twigs, leaves collected in the gulches, and such sorts of grasses and shrubbery as easily catch fire. Because this very work is attended with danger to the forest, besides being a tremendous undertaking and necessarily slow of accomplishment, is the best of reasons for taking it up soon and pushing it systematically and unremittingly. All progress in this labor will be real gain in the fire control that it assures, besides contributing to the beauty of the parks and convenience of travel. All such clearings serve also to check the spread of fire set by lightning and other causes and have their proper place in the general scheme of fire breaks. Some clearing has been done in Grant Park to good effect, yet there largely and throughout Sequoia Park exist great fire traps, resulting from the natural conditions of forest growth, which should be met and remedied if they can not be turned to good account. Wild oats all over the lower slopes, and everywhere logs, vines, and leaves in all stages of decay, the resinous witch hazel, and other shrubs and growing brush invite the flames. All these should be cleared beyond the probable reach of the ordinary causes of fire. Only the sequoia logs are not in themselves a menace to the forest; their soundness is of a quality that renders them exceedingly resistant to decay, to the attack of insects, or to destruction, though scorched by fifty fires, but they may be kindled by brush heaps piled close about them, and once fairly set afire are difficult to manage, and they should therefore be protected as the growing trees.

PROTECTION OF THE BIG TREES.

Seven years ago fences were put around the two trees, General Grant and General Sherman. The fence was removed from the General Sherman tree last year, and a falling limb of the General Grant tree has broken down a large part of its fence. Both of these trees have been made the useless signposts of that witless vandalism that sometimes impels even sensible travelers to carve their names or otherwise leave their cards by means of tin tags, nail driven into the head, and other devices where they may do harm without benefit to themselves or interest to others; and the trees have suffered the occasional loss of a piece of bark not likely to be put to a better use than it served on the living tree from which it was torn; but visitors should not be prevented from approaching near the trees, and it is better to rely upon signs bearing information that may be desired and warning "Hands Off."

CARE OF THE FOREST.

The sequoias require little attention beyond clearing the ground around them and leaving them alone. The other forest growth would be improved by the removal of dead, decaying, and diseased timber. Although the importance of not unnecessarily disturbing the natural conditions is always to be considered as a general feature of the national-park plan, yet a desirable thinning out of trees of all kinds in selected places could be accomplished in connection with the reforestation of tracts now barren of timber or growing less desirable sorts. This matter should be taken up under advice, with a view to the greatest ultimate economy of ground and means as well as success in the benefits to accrue.

The absence of trees of any size on the slopes and cañons extending from the Ash Peaks to Buck Cañon, which stretch thousands of feet below Moro Rock and Panther and Alta peaks, strikes the attention at once. These slopes are covered with scrub growth of all sorts; experiments with both pine and sequoia have shown that they will thrive in such localities as this. The South Fork country, both low and high, affords opportunity in many places for the setting of groves that would be both useful and beautiful to look upon. Similar opportunity exists in the northeastern part of the park. In all development of this character it is important to approach the work with unity of plan. Just beyond the entrance to the main gate of the park is an area that would be improved very much if it were reforested. The first impression of the tourist entering the park and his last view of the park comprises a monotonous, scrub-oak hollow, unrelieved by shade or diversity in the landscape.

FUTURE IMPROVEMENT WORK.

The roads generally should be macadamized; in some places oil could be used to advantage, and in Grant Park there is coarse granite sand that could be used for topping. The main road in Sequoia Park should be widened to 18 feet throughout; several of the existing trails, notably the one leading through the Black Oaks to Muir Grove and farther on to the region of the rare Fremont moss, should be converted into wagon roads, and many new roads and trails laid out. There should be a stairway and hand rails on Moro Rock. Twin Lakes should be improved by the construction of boathouses and bath houses. In the present unimproved state of the park it matters comparatively little what new routes may be opened up and other work undertaken, because every improvement will fit into the eventual plan, but this fact in nowise diminishes the importance, from every practical point of view, of having a comprehensive scheme of park improvement. Over several areas where the undergrowth is dense, and a present obstruction to reforestation, cattle could be grazed advantageously to clear the ground, or herds of buffalo could be maintained. There are two classes of ground that would be benefited by the introduction of cattle for a limited time under suitable restrictions, those where the cattle would clear the brush and trample the débris and hasten its decay, and those areas that now have all the trees they can support.

FISH.

The Kaweah River system is composed of the South Fork, the North Fork, the Middle Fork, the East Fork, and the Marble Fork. The park includes a large part of all these streams except the North Fork, but not all the headwaters. Its boundaries should include the whole watershed of the Kaweah; and, because nothing in the park plan can work injury to the water, either through pollution, diminution of flow, or otherwise, they may well be extended to include also some of the trout streams tributary to the Tule River, the upper Kern rivers, Mount Whitney as far as the divide, and the South Fork of the Kings River. This would secure to the people the best care of the fishing grounds, which are now yearly resorted to in uncertainty of the sport to be found there or of the possibility of finding feed for their stock.

Fish were planted in a great many places this year throughout this region, and some were planted in the park waters, chiefly by Mr. S. L. N. Ellis, representing the State Board of Fish and Game Commissioners. Fishing with bait was prohibited in the park, and in some of the adjacent waters was prohibited entirely, yet numbers of places were quite fished out. The fish should not all be taken from the streams every season, as is now the tendency. The mad rush to clean up the fishing grounds can be partially checked by prohibiting fishing on selected streams at and near the bridges and at crossings of roads and trails. A valuable contribution to the park's usefulness would be the establishment of a hatchery on the Middle Fork, and an estimate has been made for an appropriation for this purpose.

ANIMALS.

Predatory wild beasts are increasing and provision should be made for their destruction. Six deer were found this summer killed by lions near the roads or trails in various parts of Sequoia Park and the footprints of lions can be daily seen in the road, though beasts of prey themselves are rarely seen. Many applications are received to hunt and trap the harmful animals. It is recommended that this be made a part of the park service by the employment of a man to do the work, or by contract. In this connection it is respectfully suggested that the department consider the propriety of arranging for organized lion hunts. Guides, hunters, trappers, packers, and cooks can be engaged in this vicinity on short notice. Lions, badgers, coyotes, foxes, wolverines, wildcats, civet cats, and skunks are increasing and their destruction of the deer and other smaller animals and game birds is a matter of serious concern. Bears give little trouble when they are not fed and encouraged to prowl around camp kitchens. The small herd of elk is increasing.

The deer are increasing and are very tame.

For the park fairly to fulfill its present purpose, especially as a suitable and ample game preserve, its boundary lines ought to be changed. As the boundary follows straight township divisions, it has no relation to the topography, and deer frequenting the edge of the reserve in security on the thirty-first of August fall at dawn on the first of September wherever they chance to set foot over a line which is crossed so easily. A military camp could not desire a line of outposts more watchful and effective than the hunters that surround this park on the eve of the open season. It is a bad condition that puts these close-to-the-liners at such an advantage over their quarry, for it must be expected that hunters of all degrees will come as near as the bounds permit.

A national park should not be made a game preserve to set up standing living targets on its borders. There would be no deer in the country if it were not for the park, and the park is not large enough to stock the surrounding hunting grounds with deer to meet the demands of hunters. Tulare County recognizes the scarcity of deer by prolonging the closed season to August 31. Not only should the park lines conform to the natural limits of animal ranges, but the ranges ought to be far wider and unhindered, and provision ought also to be made for the protection of the winter ranges in the low country west of the park. Does have been shot on the hillsides west of the North Fork. Some of the elk have this year broken through their fence and ranged several miles down the Middle Fork. The park has an area of 12 miles square in the northern part with an L at the south 18 miles by 6, a mere spot in the midst of a large territory available for such use; hunters are crowded around it now and have been coming and going these six weeks; they also shoot bears, swans, wild turkeys, and small game, both animals and birds; though the state law protects swan and wild turkey, as well as elk, mountain sheep, and Japanese and Mongolian pheasants.

The wild turkeys thrive, though when first introduced some of the younger ones became the prey of foxes. Two lots of these birds, donated by the California board of fish and game commissioners, were liberated this summer, 55 at the mouth of the Marble Fork and 29 at Salt Spring.

Buffalo would find plenty of feed, and there are several suitable ranges in the park ready for them. The introduction of a small herd is recommended.

Antelope would probably do well in the upper reaches of the South Fork; though the meadows there have not the extensive character of "plains," the experiment is worth a trial.

EXTENSION OF PARK.

Several trips of the nature of exploration were made by officers of the troop. Lieutenant Pegram marched a small detachment to Mount Whitney in the latter part of July, ascending to the monument on the topmost point of the mountain, and including in his itinerary the superb cañon of the Kern. He made the round trip in record time, returning with useful information and many photographs, taken by Hospital Sergeant Bitourney. A few weeks later Lieutenant Roscoe conducted a party into the regions north and east of the park, visiting the headwaters of Roaring River and the vicinity of Elizabeth Pass. Captain Wright, in the latter part of August, went to Kearsarge Pass by way of the Kings River Cañon and tributaries and lakes of that river. All of this outlying country holds much that is of interest to the tourist, however far he may have traveled, and possesses great possibilities for fostering wild life of many kinds, afoot and on the wing, providing both refuge and wide places over which to roam, eye, ear, and scent untroubled. Conditions are ideal for mountain sheep and mountain goats. The bald and golden eagles and the almost extinct California condor have in these crags and skies their native range.

The Kern-Kaweah-Kings country with its abundant water supply, good natural feed, wide range of altitudes and wild and varied conformation practically inaccessible in many places, is well suited to the propagation of game, and all this mountain country should be included in the park by reason of its comparative unimportance as a cattle range, its scant indications of valuable metals or other minerals, its extensive areas without merchantable timber or with such timber scant or inaccessible, its unsuitability for settlement or agriculture, its importance in conserving water, its groves of big trees now standing outside the parks, its unrivaled trout streams, numerous beautiful lakes, and magnificent scenery, including Mount Whitney, long held to be our highest mountain. Twenty ranches occupy a narrow strip along the North Fork from its mouth at the iron bridge to the mouth of Colony Mill Creek, to which point the course of the stream and its tributaries is through rough and dense brushy country, except at Eshom Valley and a few other open places. There is a good deal of patented land in the Redwood Mountain district and there is a movement on foot to cut timber there and flume or track the lumber to Three Rivers. There are ranches in the open places below the park along the East Fork, Middle Fork, South Fork and its tributaries, and all along the main river, and some on the North Fork of the Tule River, and cattle graze over the country (much of it private land) extending from Roaring River to the west and south around the park to the Tule. A large lumber company is operating at Hume and in the surrounding timber, but all these things do not make an insuperable obstacle to extending the park.

It is recommended that the park boundaries be changed so that they will follow the divides as far as practicable. The northern boundary of the park should be the summit of the divide between the South and Middle forks of Kings River. Thence the boundary should run along the divide west and northwest of Boulder Creek and Bearskin Meadow to the northern boundary of the General Grant National Park; thence along the present northern and western boundaries of General Grant National Park to the southwest corner of that park; thence along the summit of the divide west of the North Fork of Kaweah River to Kaweah River; thence along the divide south of the South Fork of Kaweah River to Sheep Mountain; thence south along the divide that separates the northernmost headwaters of Tule River from Pecks Canyon and Mountaineer Creek to the divide south of Mountaineer Creek; thence along the summit of this divide to a point on Little Kern River 6 miles south of the present boundary of the park; thence due east to the western boundary of Inyo County; thence north and northeast along the western boundary of Inyo County to the divide between the South and Middle forks of Kings River.

It is recommended that the following work be done as soon as possible:

Remove logs, brush, inflammable material, and the largest trees from the roadsides and trails.

Clear the fire-break along the General Grant Park boundary.

Extend the Giant Forest road and widen it to 18 feet.

Macadamize the roads.

Place surface dressing of granite sand on the roads in General Grant Park.

Oil the roads in places where the dust is troublesome.

Survey a wagon road to connect the Giant Forest with Middle Fork road.

Allow cattle to graze in selected localities, in order to clear the way for reforestation and open new territory for development.

Complete the Cold Spring-Clough Cave trail.

Cut new trails to the more important points in the park.

Build a stairway and place hand rails on Moro Rock.

Build pier, bath houses, and boathouses at Twin Lakes.

Erect gates at entrances to the park.

Have the caves in the park fully explored.

Construct two stone reservoirs over the springs at Ranger.

Erect a water pipe and public drinking fountain at Ranger.

Install water pipe to the tourist camp ground in the General Grant Park.

Fence the tourist camp ground in General Grant Park.

Repair the fence around General Grant Park.

Fence horse pasture for the use of rangers near Ranger and near Rocky Gulch.

Build a ranger's cabin in the Giant Forest and another one on the north line of the Sequoia Park.

Install telephone lines in new cabins.

Build four ranger barns, one each, at Grant Park, Hockett Meadow, Quinn Camp, and Ranger.

Improve and paint the rangers' cabins.

Paint the Marble Fork Iron Bridge.

Erect a post-office building at Ranger.

Build three gateways at General Grant Park.

Place signboards at the Grant, Sherman, and other big trees, showing the dimensions, age, and other data regarding the trees.

Make a collection of sequoia and other seeds for the purpose of testing.

Plant experimental young trees and seed and locate a tree nursery.

Erect a fish hatchery.

Plant fish fry in order to preserve the varieties unmixed.

Place a herd of buffalo and a band of antelope in the park.

Make arrangements for the systematic destruction of harmful wild animals.

Organize lion-hunting parties under the supervision of competent guides.

Respectfully submitted.

E. S. Wright,
Captain, First Cavalry, Superintendent.

The Secretary of the Interior.

RULES AND REGULATIONS.

SEQUOIA NATIONAL PARK.

General Regulations of March 30, 1907.

1. By act of Congress approved September 25, 1890, the tract of land in the State of California described in township 18 south and ranges 30 and 31 east, and also sections 31, 32, 33, and 34, in township 17 south and range 30 east, and by act of Congress approved October 1, 1890, the adjoining tract described as townships 15 and 16 south, ranges 29 and 30 east, and also township 17 south, range 30 east, except above-mentioned sections 31, 32, 33, and 34, have been set apart for a public park, and the same shall be known as the "SEQUOIA NATIONAL PARK."

2. The park by said act is placed under the exclusive control of the Secretary of the Interior, and these rules and regulations are made and published in pursuance of the duty imposed on him in regard thereto.

3. It is forbidden to injure or disturb in any manner any of the mineral deposits, natural curiosities, or wonders on the government lands within the park.

4. It is forbidden to cut or injure any timber growing on the park lands. Camping parties will be allowed to use dead or fallen timber for fuel.

5. Fires shall be lighted only when necessary and completely extinguished when not longer required. The utmost care must be exercised at all times to avoid setting fire to the timber and grass.

6. Hunting or killing, wounding or capturing any bird or wild animal on the park lands, except dangerous animals when necessary to prevent them from destroying life or inflicting an injury, is prohibited. The outfits, including guns, traps, teams, horses, or means of transportation used by persons engaged in hunting, killing, trapping, ensnaring, or capturing such birds or wild animals, or in possession of game killed on the park lands under other circumstances than prescribed above, will be taken up by the superintendent and held subject to order of the Secretary of the Interior, except in cases where it is shown by satisfactory evidence that the outfit is not the property of the person or persons violating this regulation and the actual owner thereof was not a party to such violation. Firearms will only be permitted in the park on written permission from the superintendent thereof.

7. Fishing with nets, seines, traps, or by the use of drugs or explosives, or in any other way than with hook and line, is prohibited. Fishing for purposes of merchandise or profit is forbidden. Fishing may be prohibited by order of the superintendent of the park in any of the waters of the park, or limited therein to any specified season of the year, until otherwise ordered by the Secretary of the Interior.

8. No person will be permitted to reside permanently, or to engage in any business on the government lands in the park without permission, in writing, from the Secretary of the Interior. The superintendent may grant authority to competent persons to act as guides and revoke the same in his discretion, and no pack trains shall be allowed in the park unless in charge of a duly registered guide.

9. Owners of patented lands within the park limits are entitled to the full use and enjoyment thereof; such lands, however, shall have the metes and bounds thereof so marked and defined as that they may be readily distinguished from the park lands. Stock may be taken over the park lands to patented lands with the written permission and under the supervision of the superintendent.

10. The herding or grazing of loose stock or cattle of any kind on the government lands in the park, as well as the driving of such stock or cattle over the same, is strictly forbidden, except in such cases where authority therefor is granted by the superintendent.

11. The sale or use of intoxicating liquors on the government lands in the park is strictly forbidden.

12. Private notices or advertisements shall not be posted or displayed on the government lands within the reservation, except such as may be necessary for the convenience and guidance of the public.

13. Persons who render themselves obnoxious by disorderly conduct or bad behavior, or who may violate any of the foregoing rules, may be summarily removed from the park and will not be allowed to return without permission, in writing, from the Secretary of the Interior or the superintendent of the park.

14. The superintendent designated by the Secretary is hereby authorized and directed to remove all trespassers from the government lands in the park and enforce these rules and regulations and all the provisions of the act of Congress aforesaid.

Regulations of March 30, 1907, Governing the Impounding and Disposition of Loose Live Stock.

Horses, cattle, or other domestic live stock running at large or being herded or grazed on the government lands in the Sequoia National Park without authority from the superintendent of the park, will be taken up and impounded by the superintendent, who will at once give notice thereof to the owner, if known. If the owner is not known, notices of such impounding, giving a description of the animal or animals, with the brands thereon, will be posted in six public places inside the park and in two public places outside the park. Any owner of an animal thus impounded may, at any time before the sale thereof, reclaim the same upon proving ownership and paying the cost of notice and all expenses incident to the taking up and detention of such animal, including the cost of feeding and caring for the same. If any animal thus impounded shall not be reclaimed within thirty days from notice to the owner or from the date of posting notices, it shall be sold at public auction at such time and place as may be fixed by the superintendent after ten days' notice, to be given by posting notices in six public places in the park and two public places outside the park, and by mailing to the owner, if known, a copy thereof.

All money received from the sale of such animals and remaining after the payment of all expenses incident to the taking up, impounding, and selling thereof shall be carefully retained by the superintendent in a separate fund for a period of six months, during which time the net proceeds from the sale of any animal may be claimed by and paid to the owner upon the presentation of satisfactory proof of ownership, and if not so claimed within six months from the date of sale such proceeds shall be turned into the Sequoia National Park fund.

The superintendent shall keep a record in which shall be set down a description of all animals impounded, giving the brands found on them, the date and locality of the taking up, the date of all notices and manner in which they were given, the date of sale, the name and address of the purchaser, the amount for which each animal was sold and the cost incurred in connection therewith, and the disposition of the proceeds.

The superintendent will, in each instance, make every reasonable effort to ascertain the owner of animals impounded and to give actual notice thereof to such owner.

GENERAL GRANT NATIONAL PARK.

General Regulations of March 30, 1907.

1. By act of Congress approved October 1, 1890, the tract of land in the State of California described as sections 5 and 6, in township 14 south, range 28 east of Mount Diablo meridian, and also sections 31 and 32, of township 13 south, range 28 east of the same meridian, have been set apart for a public park, and the same shall be known as the "General Grant National Park," "General Grant" being the name by which the Great Tree therein is so widely known.

All other provisions of the General Grant Park regulations are the same as those for Sequoia National Park.

Regulations of August 17, 1910, Governing the Admission of Automobiles and Motorcycles into the General Grant National Park, California, during the Season of 1910.

Pursuant to authority conferred by the act of October 1, 1890 (26 Stat., 650), setting aside certain lands in the State of California as a public park, the following regulations governing the admission of automobiles into the General Grant National Park are hereby established and made public:

1. No automobiles will be permitted within the metes and bounds of General Grant National Park unless the owner thereof secures a written permit from the acting superintendent or his representative. Permits may be obtained from the acting superintendent at Three Rivers, Cal., or his authorized representative at the rangers' headquarters on the government road in the General Grant National Park.

2. Applications for permits must show: (*a*) Name of owner, (*b*) number of machine, (*c*) name of driver, and (*d*) inclusive dates for which permit is desired, not exceeding one year, and be accompanied

by a fee of $1 for a single round trip through the park or a fee of $5 for each machine per annum. Permits must be presented to the acting superintendent or his authorized representative at the rangers' headquarters on the government road. The permittee will not be allowed to do a transportation business in the park without a special license therefor from the Secretary of the Interior. All permits granted at any time when automobiles can enter the park will expire on December 31 of the year of issue.

3. The use of automobiles will be permitted only on the Millwood road, the Round Meadow road, the North road north of its junction with the north end of the Round Meadow road, and the tourists' camp grounds, and return, between the hours of 6.30 a. m. and 10.30 a. m. and between the hours of 3.30 p. m. and 6.30 p. m.

4. When teams approach, automobiles will take position on the outer edge of roadway, regardless of the direction in which they are going, taking care that sufficient room is left on the inside for the passage of teams.

5. Automobiles will stop when teams approach and remain at rest until teams have passed or until teamsters are satisfied regarding the safety of their teams.

6. Speed will be limited to 6 miles per hour, except on straight stretches, where approaching teams will be visible, when, if no teams are in sight, this speed may be increased to the rate indicated on signboards along the road. In no event, however, shall it exceed 15 miles per hour.

7. Signal with horn will be given at or near every bend to announce to approaching teams the proximity of an automobile.

8. Teams have the right of way, and automobiles will be backed or otherwise handled, as necessary, so as to enable teams to pass with safety.

9. Violation of any of the foregoing rules or the general regulations for the government of the park will cause revocation of permit, will subject the owner of the automobile to any damages occasioned thereby and to ejectment from the reservation, and be cause for refusal to issue a new permit to the owner without prior sanction in writing from the Secretary of the Interior.

10. All persons passing through the park with automobiles should be required to stop at the rangers' headquarters and register their names.

11. These rules are also applicable to motorcycles, which may use only the roads herein mentioned on payment of a fee of $1 for each machine per annum. Permits issued therefor shall expire on December 31 of the year of issue.

PENALTIES FOR DEPREDATIONS ON TIMBER AND FOR NOT EXTINGUISHING FIRES ON THE PUBLIC LANDS.

[Excerpt from an act entitled "An act to provide for determining the heirs of deceased Indians, for the disposition and sale of allotments of deceased Indians, for the leasing of allotments, and for other purposes," approved June 25, 1910 (36 Stat., 857)].

SEC. 6. That section fifty of the act entitled "An act to codify, revise, and amend the penal laws of the United States," approved March fourth, nineteen hundred and nine (Thirty-fifth United

States Statutes at Large, page one thousand and ninety-eight), is hereby amended so as to read:

"SEC. 50. Whoever shall unlawfully cut, or aid in unlawfully cutting, or shall wantonly injure or destroy, or procure to be wantonly injured or destroyed, any tree growing, standing, or being upon any land of the United States which, in pursuance of law, has been reserved or purchased by the United States for any public use, or upon any Indian reservation or lands belonging to or occupied by any tribe of Indians under the authority of the United States, or any Indian allotment while the title to the same shall be held in trust by the Government, or while the same shall remain inalienable by the allottee without the consent of the United States, shall be fined not more than five hundred dollars, or imprisoned not more than one year, or both."

That section fifty-three of said act is hereby amended so as to read:

"SEC. 53. Whoever shall build a fire in or near any forest, timber, or other inflammable material upon the public domain, or upon any Indian reservation or lands belonging to or occupied by any tribe of Indians under the authority of the United States, or upon any Indian allotment while the title to the same shall be held in trust by the Government, or while the same shall remain inalienable by the allottee without the consent of the United States, shall, before leaving said fire, totally extinguish the same; and whoever shall fail to do so shall be fined not more than one thousand dollars, or imprisoned not more than one year, or both."

REPORT OF THE SUPERINTENDENT OF THE MOUNT RAINIER NATIONAL PARK.

REPORT OF THE SUPERINTENDENT OF THE MOUNT RAINIER NATIONAL PARK.

OFFICE OF SUPERINTENDENT,
Ashford, Wash., October 6, 1910.

SIR: I have the honor to submit the following report of the condition of affairs in the Mount Rainier National Park for the fiscal year ended June 30, 1910, and for the season of 1910.

By the act of Congress approved March 2, 1899 (30 Stat., 993), certain tracts of land therein described, lying in the State of Washington, were set aside for the benefit and enjoyment of the people of the United States, to be known as the "Mount Rainier National Park." This park is 18 miles square, with an area of 207,360 acres, and lies wholly within the Rainier National Forest. The summit of Mount Rainier is about 1½ miles southwest of the center of the park, but the reservation includes substantially the whole mass of the mountain proper, with its wonderful glacial system, which is said to be the largest radiating from any single peak in the world.

The park by said act is placed under the exclusive control of the Secretary of the Interior, who, among other things, is authorized to establish rules and regulations and cause adequate measures to be taken for the preservation of the natural curiosities, timber, mineral deposits, game, etc., and the removal of unlawful occupants or trespassers.

TOPOGRAPHY.

Mount Rainier is situated apart from and to the west of the main range of the Cascades. The ridges which radiate from it are high and broken. The entire area of 324 square miles included within the boundary of the park is very rough and mountainous. The summit of Mount Rainier is 14,526 feet in altitude. The lower valleys of the Carbon and Nisqually rivers are not more than 2,000 feet above sea level, but the general elevation of the park exceeds 4,000 feet. Although there is little rain or snow from July 1 to the middle of September, the precipitation during the remainder of the year is very great. The season of tourist travel is confined largely to June, July, August, September, and the first part of October, although parties of tourists enter the park in winter for snowshoeing and winter sports. During the winter months the government road is kept open for sleighs as far as Longmire Springs. Beyond this point the park is impassable for horses.

The summit of Mount Rainier is accessible from Camp of the Clouds in Paradise Valley, and from St. Elmo Pass, between the White and Emmons glaciers. The difficulty of the ascent depends largely upon the condition of the snow fields, which vary from year to year. It is dangerous unless the party is accompanied by a guide or by some other person who has been over the route. On August 14, 1909, two men made the ascent from Paradise Valley and perished in a storm. It is believed they lost their lives while trying to cross the feeders of the White River glacier. The bodies of these men have not been recovered, and in all probability will not be until the feeders of this glacier have moved to their terminal moraines.

Between and below the glaciers are numerous open slopes and valleys which are covered with a luxuriant growth of grasses, sedge, and flowering plants. These parks are diversified by growths of alpine fir and hemlock and by many small lakes and running streams. They present a pleasing contrast to the snow fields and rugged peaks by which they are surrounded, and are greatly admired by visitors. Paradise Valley is the most frequented of the many parks. The government road running through this park and for some distance beyond the Camp of the Clouds makes it easily accessible for tourists. Near Paradise Valley and at the headwaters of Tacoma Fork is Indian Henry's Hunting Ground, so named from the circumstance that it was formerly the favorite resort of a small band of Klickitat Indians. Grand Park, between the main and west forks of White River, is one of the largest and most beautiful of these open tracts. At the altitude of 6,000 feet it is an almost level grassy plateau, the greater part of which is entirely without timber. Moraine Park, between the Sluiskin Range and the Carbon Glacier, is a small and very attractive mountain valley. A natural stone bridge has recently been discovered near the west branch of the White River. The span of the bridge measures 150 feet and is 200 feet from the floor of the ravine, which it crosses. This bridge overlooks two rock-bound lakes. It is 1 mile from the Grand Park trail.

FOREST CONDITIONS.

The forest in the lower valley is of the type characteristic of western Washington and Oregon. The undergrowth is dense and the forest floor is covered with moss and with a litter of fallen branches and decayed wood. The predominant trees are the Douglas fir, hemlock, white fir, and cedar. At 3,000 feet these species occur together with the lovely and noble fir. From 4,000 feet to snow line the forest is distinctly alpine, and consists of mountain hemlock, alpine fir, and Alaska cedar. On the high ridges are numerous and extensive tracts of timber killed by fire before the creation of the park. These areas are reforesting very slowly. The high winds, scanty soil, short summers, and extremely cold winters are unfavorable to tree growth.

There is a large quantity of dead timber in the park, and this timber increases the danger from fire; some means should be found for its removal. A considerable amount of this dead timber is cedar, and in the spring of 1909 a contract was entered into with a mill company near Ashford for the dead cedar on a designated area along Nisqually River, the contract price for this timber being $1.30 per cord. There have been 7,172 cords removed, and no further cutting will be done under this contract. If it is considered advisable to sell the remaining dead cedar, it should be cut by the Government and sold in lots of 500 or 1,000 cords to the highest bidder.

ROADS AND TRAILS.

The government road, built by the Engineer Corps, United States Army, is now practically completed from the western boundary of the Rainer National Forest to a point beyond Camp of the Clouds in Paradise Valley, a distance of approximately 25 miles. The road has been carefully located and a grade not exceeding 4 per cent obtained. The construction of this road is a very creditable piece of engineering and has been under the immediate supervision of Mr. Eugene Ricksecker, Assistant United States Engineer. Mr. Ricksecker has been particular to see that the road passed all points of interest, and it is said to be one of the finest scenic roads in America. An expenditure of $1,000 has been made through this office for keeping the road in good condition during the season of 1910.

Ashford, the present terminus of the Tacoma Eastern Railroad, is 6½ miles from the western boundary of the park and 13 miles from Longmire Springs. From June 1 to October 15 a stage line is maintained from Ashford to Longmire Springs. Two automobile stages, carrying 20 passengers each, have been in use during the season of 1910.

The northern and northwestern parts of the park are reached by trail from Fairfax. From this place trails lead to Carbon River, Spray Park, and Mowich River. A trail should be constructed to connect the Spray Park trail with the Carbon River trail in the vicinity of the Meadows. This trail if constructed would greatly facilitate patrol in this district. When funds are available a trail should be constructed from the present terminus of the Grand Park trail, near the west branch of White River, easterly and southerly around the base of Mount Rainier to the Cowlitz watershed. At the present time the eastern part of the park is not accessible and no patrol is maintained there. Considerable damage was done to trails in the Carbon River district by winter storms. Trails in this district were repaired and improved during the season of 1910 by the rangers stationed there. Washouts along the bank of Carbon River necessitated the construction of a new trail for some distance.

During the season of 1910, 3 miles of trail was constructed to the open parks near the summit of Eagle Peak, which has an elevation of 6,000 feet, and is made easily accessible by this trail. The trail, leaving the government road at Longmire Springs, crosses Nisqually River, and from the east bank ascends rapidly by switchbacks to the top of the ridge. As a very fine view may be obtained from Eagle Peak, the climb meets with favor among tourists. One mile of trail was also constructed to the top of the Ramparts. The Ramparts rise some 1,800 feet above Longmire Springs, and a very good view of the surrounding country may be had from this point. The approximate cost of these two trails was $350. An expenditure of $255 was made for parking the woods and clearing a camp site at Longmire Springs.

RANGER CABINS.

There are three ranger cabins in the park. The gate keeper's lodge on the government road is a small log building. An addition has been built on this cabin which serves for an office for the park superintendent. The cabin at Longmire Springs is a three-room log house with frame addition for kitchen. Two brick chimneys have recently been built in this cabin, the interior finished, and a barn and woodshed constructed, at a total cost of $281. The cabin at the Carbon River station has not been properly finished and is not occupied. This cabin should be completed and furnished with chairs, bedstead, table, and cook stove. A stable is also needed at this station. There are several cabins in the park which have been abandoned by prospectors, and they afford shelter for rangers while on patrol duty.

PROSPECTING.

No known prospecting has been carried on in the park during the past season. In the Carbon River and White River districts and about Glacier Basin there are about 75 prospects to which an active claim is asserted. The Washington Mining and Milling Company holds 15 claims situated on the south side of Carbon River in the northwestern part of the park. Considerable development work has been done on the claims. Several buildings have been put up and tunnels made in the side of the mountain. The company contemplates building a road from these claims to the logging railroad constructed in the winter of 1908–9 from Fairfax to sec. 6, T. 17 N., R. 7 E., in the Mount Rainier National Forest. In the same part of the park six claims are held by J. I. Sexton, of Tacoma, and his associates, under the name of Hepzibah Mining Company. The fir and cedar timber on and in the vicinity of the claims held by the Washington Mining and Milling Company and the Hepzibah Mining Company is very heavy. Some of the trees are from 10 to 12 feet in diameter. The undergrowth is dense, and there is special need of fire protection.

Forty-two claims are held in Glacier Basin by the Mount Rainier Mining Company, under the management of Mr. Peter Starbo, of Enumclaw. This basin is situated at an altitude of 9,000 feet, between the White and Emmons glaciers. Owing to the profuse growth of mountain grasses and flowering plants and the fine groves of alpine timber, it is one of the most pleasing of the smaller parks. Mountain goats were formerly common in the vicinity. The mining claims are all contiguous and are located in the basin and on the ridges that surround it. The mining is done on the claims in the upper end of the basin and above timber line. The tunnels run in the direction opposite to that by which the other claims would be reached. The lower claims in the group are in the timber, and a sawmill has been built to cut this timber into lumber for the mine. Considerable development work has been done on this property consisting of tunnels, two cabins, blacksmith shop, and barn.

There are three groups of claims in the Nisqually district on which active operations are being carried on. These claims are in the vicinity of Longmire Springs. Development work consists of tunnels and buildings.

TRAVEL.

During the season of 1910, 7,654 visitors entered the park by way of the government road. Of this number 3,200 were transient visitors and 4,454 remained three days or more. One hundred visitors entered the park by way of Fairfax, 75 being campers who remained three days or more. The total number of visitors known to have entered the park this season to date is 7,754. It is estimated that this number will be increased by probably 300 transient visitors before the season closes, most of whom will come by automobile. Of the total number entering the park, 2,620 traveled by stage, 4,413 by automobile, 343 by wagon, 113 by motorcycle, 237 on foot, 15 by bicycle, and 13 on horseback.

There has been a substantial increase in travel during the past few seasons. In 1908, 3,511 entered, in 1909, 5,968 entered, and it is expected before the present season closes the register will show the names of 8,000 visitors. The summit of Mount Rainer was reached by 159 persons during the season just passed.

FIRES.

September 18, 1909, a fire started near Carter Falls on the Paradise Valley trail, which burned over about 4 acres before it was extinguished. The fire occurred in an old burn, and only 30 green trees were destroyed. The cause of this fire is unknown.

During the dry season just passed several small fires started, all of which were discovered by rangers and extinguished before any damage was done.

PATROL.

During the season of 1910 the ranger force consisted of 6 men, 2 of whom are regular rangers and on duty throughout the year. Four men were employed as temporary rangers, one of them being detailed as gatekeeper at the park entrance on the government road, and 3 for patrol duty in different parts of the park. In addition to patrol work, it was the duty of one of these men to look after the removal of the dead timber in the park. A systematic patrol was maintained during the dry season and a vigilant watch kept by the entire ranger force for forest fires.

GAME.

Wild animals are becoming more numerous in the park each year. In the watersheds of Puyallup, Mowich, and Carbon rivers, deer, bear, grouse, and ptarmigan are found in abundance, and on the higher ridges a great many mountain goat have been seen. The blasting necessary in constructing the government road in the Nisqually district has, to some extent, driven the game from this district to the northern part of the park. There has been no hunting or killing of game in the park during the fiscal year of 1910.

BOUNDARIES.

The boundary line of the park was definitely established by a survey completed in the fall of 1908 by W. H. Thorn. A topographic survey is now being made by the United States Geological Survey. An accurate contour map will be interesting to the public and of great value to the administration of the park.

MINERAL SPRINGS.

The Longmire mineral springs are the only ones of any importance that have been discovered in the park. These springs are well known and are noted for their curative powers. The springs are located on patented land. Bath houses have been built, and attendants are employed during the tourist season.

AUTOMOBILES.

During the season of 1910, 547 automobile permits were issued, and 863 machines entered the park. The speed limit in the park is 15 miles per hour, and at abrupt curves this is reduced, signs being placed at points along the road indicating the rate of speed allowed. The government road in the park may be used by automobiles during certain hours of the day, and the general disposition has been to comply with all regulations. No trouble whatever has been experienced with automobile owners during the past season, and only accidents of a minor nature have occurred.

The road is open to automobiles as far as the Nisqually Glacier, and it is not considered safe to permit machines beyond this point until the road has been widened or passing places made which can be seen from one to the other.

HOTELS AND CAMPS.

The principal hotel in the park is the National Park Inn, which is located at Longmire Springs and operated by the Tacoma Eastern Railroad Company. The building is rather attractive and the management for the past two seasons has been satisfactory.

The Longmire Springs Hotel is maintained on patented land. It is reported that this piece of land has recently been sold and in the near future a large hotel will be erected upon it.

In Paradise Valley John L. Reese operates a tent hotel. Fifty tents are used and the place is popular among mountain climbers. The sanitary conditions at this camp are not satisfactory and Mr. Reese intends to remedy this defect before another season opens. George B. Hall conducts a similar enterprise at Indian Henry's Hunting Ground, 15 tents being used.

SPECIAL PERMITS.

The Tacoma Carriage and Baggage Transfer Company operates a stage line from Ashford to Longmire Springs, Nisqually Glacier, Narada Falls, and Paradise Valley. From Ashford to Longmire Springs two 20-passenger automobile stages are used, and from Longmire Springs to Paradise Valley three 3-seated and three 4-seated wagons are operated.

Mr. George B. Hall maintains a livery business at Longmire Springs and operates stages between this point and Paradise Valley. The equipment consists of 40 head of saddle and pack animals, 15 driving horses, 3 buggies, 3 stages, and 1 freight wagon.

A general photographic business is conducted in tents at Longmire Springs by Mr. L. G. Linkletter.

The De Lape Tours Company secured a permit to operate automobile stages from Tacoma to Longmire Springs. Owing to faulty equipment, the project was abandoned for the season.

Permits to operate rented automobiles in and through the park were issued to Tacoma Touring Company, S. H. Gibbs & Co., Tacoma Auto Livery Company, and W. B. Sanford.

A special-use permit was granted the De Lape Tours Company for the construction of a telephone line through the park. Work on this line not having been started within the time specified by the agreement the permit was canceled.

ESTIMATES AND RECOMMENDATIONS.

Estimates for the ensuing fiscal year are as follows: Salaries, $5,600; road maintenance, $5,000; trail construction, $1,500; for repair and improvement of trails, $300; protection from forest fires, $1,000; total, $13,400.

The park should be given every possible protection from fire. During extreme dry seasons extra men should be employed and a systematic patrol made of the entire park. All brush and refuse resulting from the construction of government road, mining operations, and from other causes, should be burned during the wet season. Immediate steps should be taken to ascertain the validity of all mining locations in the park, with the object in view of canceling any claims not held in good faith. The automobile regulations should be revised to some extent, recommendations for which will be made before the opening of next season. A fence three-quarters of a mile in length should be built along the western boundary line of the park, near the gate-keeper's lodge, to keep cattle from entering the park. It is further recommended that men employed to police the park be known as park scouts, instead of rangers, in order to distinguish them from rangers employed in national forests.

Very respectfully,

EDWARD S. HALL,
Superintendent.

The SECRETARY OF THE INTERIOR.

RULES AND REGULATIONS.

GENERAL REGULATIONS OF JUNE 10, 1908.

Pursuant to the authority conferred by the acts of Congress approved March 2, 1899, and May 27, 1908, the following rules and regulations for the government of the Mount Rainier National Park, in the State of Washington, are hereby established and made public:

1. It is forbidden to injure or disturb in any manner any of the mineral deposits, natural curiosities, or wonders on the government lands within the park.

2. It is forbidden to cut or injure any timber growing on the park lands, or to deface or injure any government property. Camping parties will be allowed to use dead or fallen timber for fuel.

3. Fires should be lighted only when necessary and completely extinguished when not longer required. The utmost care must be exercised at all times to avoid setting fire to the timber and grass.

4. Hunting or killing, wounding or capturing any bird or wild animal on the park lands, except dangerous animals when necessary to prevent them from destroying life or inflicting an injury, is prohibited. The outfits, including guns, traps, teams, horses, or means of transportation used by persons engaged in hunting, killing, trapping, ensnaring, or capturing such birds or wild animals, or in possession of game killed on the park lands under other circumstances than prescribed above, will be taken up by the superintendent and held subject to the order of the Secretary of the Interior, except in cases where it is shown by satisfactory evidence that the outfit is not the property of the person or persons violating this regulation and the actual owner thereof was not a party to such violation. Firearms will only be permitted in the park on written permission from the superintendent thereof.

5. Fishing with nets, seines, traps, or by the use of drugs or explosives, or in any other way than with hook or line, is prohibited. Fishing for purposes of merchandise or profit is forbidden. Fishing may be prohibited by order of the superintendent in any of the waters of the park, or limited therein to any specified season of the year, until otherwise ordered by the Secretary of the Interior.

6. No person will be permitted to reside permanently, engage in any business, or erect buildings, etc., upon the government lands in the park without permission, in writing, from the Secretary of the Interior. The superintendent may grant authority to competent persons to act as guides and revoke the same in his discretion. No pack trains will be allowed in the park unless in charge of a duly registered guide.

7. Owners of patented lands within the park limits are entitled to the full use and enjoyment thereof; such lands, however, shall have the metes and bounds thereof so marked and defined that they may

be readily distinguished from the park lands. Stock may be taken over the park lands to patented lands with the written permission and under the supervision of the superintendent.

8. Hereafter the location of mining claims under the mineral-land laws of the United States is prohibited within the park. Persons who have heretofore acquired in good faith rights to any mining location or locations shall not be permitted to injure, destroy, or interfere with the retention in their natural condition of any timber, mineral deposits, natural curiosities, or wonders within said park outside the boundaries of their respective mining claims duly located and held under the mineral-land laws.

9. The herding or grazing of loose stock or cattle of any kind on the government lands in the park, as well as the driving of such stock or cattle over the same, is strictly forbidden, except in such cases where authority therefor is granted by the superintendent.

10. No drinking saloon or barroom will be permitted upon government lands in the park.

11. Private notices or advertisements shall not be posted or displayed on the government lands within the reservation, except such as may be necessary for the convenience and guidance of the public.

12. Persons who render themselves obnoxious by disorderly conduct or bad behavior, or who violate any of the foregoing rules, will be summarily removed from the park and will not be allowed to return without permission, in writing, from the Secretary of the Interior or the superintendent of the park.

No lessee or licensee shall retain in his employ any person whose presence in the park shall be deemed and declared by the superintendent to be subversive of the good order and management of the reservation.

13. The superintendent designated by the Secretary is hereby authorized and directed to remove all trespassers from the government lands in the park and enforce these rules and regulations and all the provisions of the acts of Congress aforesaid.

REGULATIONS OF JUNE 10, 1908, GOVERNING THE IMPOUNDING AND DISPOSITION OF LOOSE LIVE STOCK.

Horses, cattle, or other domestic live stock running at large or being herded or grazed in the Mount Rainier National Park without authority from the Secretary of the Interior will be taken up and impounded by the superintendent, who will at once give notice thereof to the owner, if known. If the owner is not known, notice of such impounding, giving a description of the animal or animals, with the brands thereon, will be posted in six public places inside the park and in two public places outside the park. Any owner of an animal thus impounded may, at any time before the sale thereof, reclaim the same upon proving ownership and paying the cost of notice and all expenses incident to the taking up and detention of such animal, including the cost of feeding and caring for the same. If any animal thus impounded shall not be reclaimed within thirty days from notice to the owner or from the date of posting notices, it shall be sold at public auction at such time and place as may be fixed by the superintendent after ten days' notice, to be given by posting notices in six public places in the park and two public places outside the park, and by mailing to the owner, if known, a copy thereof.

All money received from the sale of such animals and remaining after the payment of all expenses incident to the taking up, impounding, and selling thereof shall be carefully retained by the superintendent in a separate fund for a period of six months, during which time the net proceeds from the sale of any animal may be claimed by and paid to the owner upon the presentation of satisfactory proof of ownership, and if not so claimed within six months from the date of sale, such proceeds shall be turned into the Mount Rainier National Park fund.

The superintendent shall keep a record, in which shall be set down a description of all animals impounded, giving the brands found on them, the date and locality of the taking up, the date of all notices and manner in which they were given, the date of sale, the name and address of the purchaser, the amount for which each animal was sold and the cost incurred in connection therewith, and the disposition of the proceeds.

The superintendent will, in each instance, make every reasonable effort to ascertain the owner of animals impounded and to give actual notice thereof to such owner.

REGULATIONS OF APRIL 6, 1910, GOVERNING THE ADMISSION OF AUTOMOBILES INTO THE MOUNT RAINIER NATIONAL PARK, WASHINGTON, DURING THE SEASON OF 1910.

Pursuant to authority conferred by the act of March 2, 1899 (30 Stat., 993), setting aside certain lands in the State of Washington as a public park, the following regulations governing the admission of automobiles into the Mount Rainier National Park, during the season of 1910, are hereby established and made public:

1. No automobiles will be permitted within the metes and bounds of the Mount Rainier National Park unless the owner therof secures a written permit from the superintendent, Edward S. Hall, Ashford, Wash., or his representative.

2. Applications for permits must show: (*a*) Name of owner, (*b*) number of machine, (*c*) name of driver, and (*d*) inclusive dates for which permit is desired, not exceeding one year, and be accompanied by a fee of $5 for each machine.

Permits must be presented to the superintendent or his authorized representatives at the park entrance on the government road. The permittee will not be allowed to do a transportation business in the park without a special license therefor from the Secretary of the Interior.

3. The use of automobiles will be permitted on the government road from the western boundary of Mount Rainier National Park to Longmire Springs between the hours of 8 a. m. and 6.30 p. m., but no automobile shall enter the park, or leave Longmire Springs in the direction of the western boundary, later than 6 p. m.; the use of automobiles to be permitted on the government road between Longmire Springs and the glacier between the hours of 9.30 a. m. and 4.30 p. m.: *Provided, however*, That the superintendent may, in his discretion, make rules for the regulation of automobiles on that portion of the government road beyond Nisqually Glacier when it is safe to permit automobiles thereon. Until the making of such rules no automobile shall be permitted to go beyond Nisqually Glacier.

4. When teams approach, automobiles will take position on the outer edge of the roadway, regardless of the direction in which they are going, taking care that sufficient room is left on the inside for the passage of team.

5. Automobiles will stop when teams approach, and remain at rest until teams have passed or until teamsters are satisfied regarding the safety of their teams.

6. Speed will be limited to 6 miles per hour, except on straight stretches where approaching teams will be visible, when, if no teams are in sight, this speed may be increased to the rate indicated on signboards along the road; in no event, however, shall it exceed 15 miles per hour.

7. Signal with horn will be given at or near every bend, to announce to approaching teams the proximity of an automobile.

8. Teams have the right of way, and automobiles will be backed or otherwise handled, as necessary, so as to enable teams to pass with safety.

9. Permits issued under the regulations of *March 12, 1909*, which extend over a part of the season of *1910*, will be subject to these regulations. *All permits granted at any time when automobiles can enter the park will expire on December 31 of the year of issue.*

All automobile regulations heretofore issued are canceled and revoked.

10. Violation of any of the foregoing rules, or the general regulations for the government of the park, will cause the revocation of permit; will subject the owner of the automobile to any damages occasioned thereby, and to ejectment from the reservation; and be cause for refusal to issue a new permit to the owner without prior sanction in writing from the Secretary of the Interior.

EXCERPT FROM AN ACT ENTITLED "AN ACT TO PROVIDE FOR DETERMINING THE HEIRS OF DECEASED INDIANS, FOR THE DISPOSITION AND SALE OF ALLOTMENTS OF DECEASED INDIANS, FOR THE LEASING OF ALLOTMENTS, AND FOR OTHER PURPOSES," APPROVED JUNE 25, 1910 (36 STAT., 857), PROVIDING PUNISHMENT FOR DEPREDATIONS AND FOR NOT EXTINGUISHING FIRES ON PUBLIC LANDS, ETC.

SEC. 6. That section fifty of the act entitled "An act to codify, revise, and amend the penal laws of the United States," approved March fourth, nineteen hundred and nine (Thirty-fifth United States Statutes at Large, page one thousand and ninety-eight), is hereby amended so as to read:

"SEC. 50. Whoever shall unlawfully cut, or aid in unlawfully cutting, or shall wantonly injure or destroy, or procure to be wantonly injured or destroyed, any tree, growing, standing, or being upon any land of the United States which, in pursuance of law, has been reserved or purchased by the United States for any public use, or upon any Indian reservation, or lands, belonging to or occupied by any tribe of Indians under the authority of the United States, or any Indian allotment while the title to the same shall be held in trust by the Government, or while the same shall remain inalienable by the allottee without the consent of the United States, shall be fined not more than five hundred dollars, or imprisoned not more than one year, or both."

That section fifty-three of said act is hereby amended so as to read:

SEC. 53. Whoever shall build a fire in or near any forest, timber, or other inflammable material upon the public domain, or upon any Indian reservation, or lands belonging to or occupied by any tribe of Indians under the authority of the United States, or upon any Indian allotment while the title to the same shall be held in trust by the Government, or while the same shall remain inalienable by the allottee without the consent of the United States, shall, before leaving said fire, totally extinguish the same; and whoever shall fail to do so shall be fined not more than one thousand dollars, or imprisoned not more than one year, or both."

REPORT OF THE SUPERINTENDENT OF THE MESA VERDE NATIONAL PARK.

REPORT OF THE SUPERINTENDENT OF THE MESA VERDE NATIONAL PARK.

OFFICE OF THE SUPERINTENDENT,
Mancos, Colo., October 24, 1910.

SIR: I have the honor to submit the following report on the management of the Mesa Verde National Park for the year ending July 30, 1910:

GENERAL STATEMENT.

The Mesa Verde National Park was established by the act of Congress approved June 29, 1906 (34 Stat., 616). It embraces an area of 66.2 square miles, or 42,376 acres, and is situated in Montezuma County, Colo.

The park is under the exclusive control of the Secretary of the Interior, who is authorized to prescribe rules and regulations for its management and establish such service as he may deem necessary for the preservation of the ruins and objects of antiquity situated thereon. It is provided by the law establishing the park that he may grant permits for the examination, excavation, and gathering of objects of antiquity, by and for the benefit of reputable museums, universities, colleges, or other recognized scientific or educational institutions, with a view to increasing the knowledge of such objects and aiding the development of archæological science.

The act also provides that all historic ruins situated within 5 miles of the boundaries of the park, on lands owned or controlled by the Government of the United States, shall be under the custodianship of the Secretary of the Interior, and shall be administered by the service established for the management of the park.

CHARACTER OF THE COUNTRY.

The principal geographic features of the park are the Rio Mancos, which cuts through it from northeast to southwest, forming a canyon of from 1,000 to 2,000 feet deep, and the Mesa Verde proper, which lies on both sides of this gorge, but largely on the northwestern side. This mesa is cut into shreds by narrow lateral canyons of great beauty, which present successions of huge promontories, sculptured ledges, and bold, jagged cliffs. The Navaho, Ruin, Moccasin, and Ute are the principal canyons which enter the Mancos from the north. Among the tributary canyons are Garfield, Prater, Fewkes, Soda, and many others not yet named. These with their numerous branches furnish the labyrinth of cliffs in the high and almost inaccessible recesses in which are found the abandoned homes of the ancient inhabitants. Fort Lewis, Grass, and Weber canyons enter the Mancos from the east and contain many ancient ruins, but are not as picturesque as those on the west.

The altitude of the park is approximately 7,000 feet, the highest elevation being Point Lookout, on the northern rim, which, according to the recent measurements of the United States Geological Survey, is 8,400 feet above sea level. The table land slopes rather rapidly southward.

LOCATION AND CHARACTER OF RUINS.

Within the jurisdiction of the park are about 400 prehistoric ruins of the types known as "cliff dwellings" and "ancient pueblos." These comprise one of the most notable groups of ancient structures within the limits of the United States, and it was for the protection and preservation of these valuable remains of antiquity that the Mesa Verde National Park was established.

In a former report a general statement was made with reference to the location of the most important of the cliff houses. In the absence of accurate maps locating the ruins, no statement is here made on this subject. Arrangements have been made with the United States Geological Survey for a complete topographic and geologic survey of the park. One important result of this survey will be the production of an accurate map giving the location of every ruin of importance within the boundaries of the park.

The most important ruins are situated upon the so-called 5-mile strip lying just south of the boundary between the government lands and the reservation of the Southern Ute Indians.

ADMINISTRATION.

The administration of the park is, by the Secretary of the Interior, vested in the superintendent, whose duties up to the present time have consisted of the protection of the ruins in the park from vandalism; the preservation of order; general oversight of tourist travel; the building of roads; improvement of trails and water supply; and cooperation in the work of excavation and repair of ruins. The superintendent has been assisted in this work by an officer known as "head ranger" and two assistant rangers, who have served only during the tourist season.

As yet no permanent buildings have been erected on the park. The headquarters of the superintendent have been maintained in the town of Mancos, Colo.

ORDER.

Since the establishment of the park there has not been found a single act of vandalism, and no unlawful excavations have been attempted. There have been no violations of the game laws, and it has not been necessary to remove anyone from the park for disorderly conduct or violation of regulations.

MOVEMENTS OF STOCK.

About 250 head of cattle were moved across the park in the fall of 1909 to the Southern Ute Indian Reservation, and about the same number were taken back north to the Montezuma Valley the following spring.

ROADS AND TRAILS.

Entrance to the park is still effected only on horseback. The carriage road ends at the foot of the mesa, about 7½ miles from Mancos, the nearest railway station, and here horses are taken for the remainder of the distance. This lack of roads has greatly increased the expense of excavations and improvements of every kind, and has doubtless kept many tourists from visiting the park.

With the appropriations allotted for that purpose, about 6 miles of carriage road were constructed upon the top of the mesa leading from near the northern rim to Spruce Tree House. This portion of the road was inexpensive and easily constructed, since it passed over an almost level plateau. The principal work consisted in removing from the roadway the pinon and cedar trees with which the mesa top is covered, and doing a small amount of grading. A portion of the road from the foot of the mesa to the top, following the line of the Mills survey, was constructed, and further appropriations are now awaited for the completion of the road to the mesa top, and the connection of this portion with that first constructed to the ruins. The portion of the road up the mesa, which is already completed, affording, as it does, a magnificent view of portions of Utah, New Mexico, Arizona, and Colorado, promises to be one of the greatest scenic highways in the United States.

Horse trails connect the most important ruins in the central part of the park, and these should be, as rapidly as possible, converted into carriage roads.

Because of the great depth of the canyons cutting the mesa from north to south, the expense of building a road to the interesting ruins in the western part of the park would be very great; however, horse trails can be constructed at comparatively little cost, and these will afford tourists opportunities for most interesting horseback trips.

WATER SUPPLY.

The springs and cisterns near Spruce Tree House yield sufficient water for the use of travelers and stock in that part of the park. Wells have been dug and windmills erected in Prater and Ruin canyons, along the route of the proposed carriage road, and these, it is hoped, will supply the water needed during the building of the roads, and for the travel that will subsequently pass to the ruins.

TRAVEL.

The number of tourists registered for the year has been 250. The majority of these have remained for from one to three days. With the opening of a carriage road and the establishment of suitable hotel accommodations, the number will probably be largely increased.

EXCAVATIONS AND REPAIRS.

Under the direction of Dr. J. Walter Fewkes, of the Smithsonian Institution, the excavations and repair of Cliff Palace has been completed. This, with the work previously done at Spruce Tree House, serves to establish the proper method of treatment necessary to the preservation of these remarkable structures.

LANDS.

At the time of the creation of this park there were 240 acres of patented lands, 800 acres in unperfected entries, and school sections 16 and 36, aggregating 2,080 acres, within the reservation. During the year unperfected homestead entry No. 2528, of William U. Michaels, covering 160 acres, was canceled for expiration of the statutory period in which to submit final proof. Under date of January 8, 1909, all of the school sections were eliminated by the certification to the State of Colorado of certain lieu selections contained in Denver lists Nos. 405, 407, 408, and 409, and these tracts are now available for general park purposes.

The patented holdings in the park are now as follows:

Final homestead entry 915, Albert Prater, for SE. ¼ SE. ¼, sec. 18; E. ½ NE. ¼, and NE. ¼ SE. ¼, sec. 19, T. 35 N., R. 14 W., New Mexico meridian; 160 acres; patented November 14, 1905.

Final homestead entry 1021, William F. Prater for SE. ¼ SE. ¼, sec. 19, E. ½ NE. ¼, NE. ¼ SE. ¼, sec. 30, same township, 160 acres; patented August 10, 1906.

Preemption cash entry 395, George Comfort, for NE. ¼ SW. ¼, sec. 26, same township, 40 acres; patented July 14, 1891.

Preemption cash entry 339, Frederick Richards, for NE. ¼ SW. ¼, sec. 26, same township, 40 acres; patented July 14, 1891.

This gives a total of 400 acres in patented lands and 480 acres in unperfected entries.

In the 5-mile strip surrounding the park there are patented lands aggregating 31,535.98 acres, unperfected entries aggregating 13,890.16 acres, and lands granted to the State aggregating 4,920 acres. The Indian Office reports that there are no allotted lands in that portion of the Southern Ute Reservation lying within the 5-mile strip.

RECOMMENDATIONS.

1. BOUNDARIES.

On the completion of the topographical map now being made of the park by the United States Geological Survey, I recommend that all the lands of the 5-mile strip, lying to the north and west of the boundaries of the government lands as then established by said survey, be released from the jurisdiction of the park, since this area contains no ruins of importance, and geographically is no essential part of the park. I also recommend that that portion of the 5-mile strip lying east of Mancos Canyon be permanently attached to the park and incorporated in it. I again recommend that negotiations be instituted with the Southern Ute Indians, looking toward an exchange of that part of their reservation lying within the 5-mile strip for lands that might be segregated for their use from the Montezuma National Forest, in what is known as the "Ute Mountain district." I am reliably informed that the Indians would welcome such an exchange. Their land within the strip is of almost no value to them, but is of incalculable value to the park, since it contains the most important ruins in the Mesa Verda district. The tract proposed for exchange in the "Ute Mountain district" contains no merchantable timber, and is isolated from the remainder of the forest so that it might well be turned over to the Utes for grazing land.

2. ROAD BUILDING.

The most pressing need is the construction of a carriage road that will make the most important ruins of the park accessible to travelers and simplify the transportation of supplies, and it is recommended that this improvement take precedence of all other work. The park should be completely opened up to visitors, and this can be done only by means of roads that will permit driving to all the principal ruins. Additional trails should be built to points of interest, and these trails should be properly located, surveyed, and constructed.

3. EXCAVATION AND REPAIR OF RUINS.

The excavation and repair of Spruce Tree House and Cliff Palace has greatly increased the interest in the park, and has provided for the proper preservation of these ruins. It is urgently recommended that Balcony House and Peabody House be similarly treated, as both are in a dangerous condition, and unless put in repair soon will be absolutely destroyed even though all vandalism be prevented.

4. BUILDINGS AND TELEPHONE LINES.

It is again recommended that a building be constructed at some favorable point in the midst of the ruins, at Spruce Tree House or Cliff Palace, that will serve as headquarters for the proper supervision of the ruins. A portion of such a building might also be rented for use as a hotel and boarding house. Such accommodations are imperatively needed, not only to furnish proper quarters for the officers in charge, but also to afford travelers such comforts and conveniences as may reasonably be expected upon a national park. A telephone line should be constructed to the town of Mancos from the custodian's house in the park, in order to facilitate the movement and accommodation of travelers.

5. CUSTODIAN AND GUARDS.

There should be provided for the assistance of the superintendent in protecting the park and facilitating travel an assistant who might bear the title of custodian, to take the place of the official now known as "head ranger," which title seems hardly appropriate for the office as now constituted. The custodian should live in the park during the entire year. There should also be employed during the tourist season two guards to look after stock, protect the ruins, and serve as guides for travelers.

6. PRIVATE HOLDINGS.

It is recommended that as soon as appropriations can be secured therefor, all private holdings within the limits of the park be eliminated by purchase.

ESTIMATES.

The following estimates of appropriation required for the ensuing fiscal year have been submitted:

Administration expenses, including the salary of the superintendent, regular park ranger, temporary rangers, and clerk, $3,600; clerical assistance and incidental office expense, $125; telephone service, $37.20; rent of office, $240; for excavation and repair of ruins, $2,500; completion of main wagon road, $6,000; custodian house, at Spruce

Tree House, for the protection of the park and accommodation of visitors when the main wagon road is completed, $3,000; team, wagon, and harness, $600; total, $16,102.20.

HANS M. RANDOLPH,
Superintendent.

The SECRETARY OF THE INTERIOR,
Washington, D. C.

RULES AND REGULATIONS.

GENERAL REGULATIONS OF MARCH 19, 1908.

Pursuant to authority conferred by the act of Congress approved June 29, 1906, the following rules and regulations for the government of the Mesa Verde National Park, in Colorado, are hereby established and made public and extended as far as applicable to all prehistoric ruins situated within 5 miles of the boundaries thereof on Indian and public lands not alienated by patent from the ownership of the United States:

1. It is forbidden to injure or disturb, except as herein provided, any of the mineral deposits, natural curiosities, wonders, ruins, and other works and relics of prehistoric or primitive man, on government lands within the park or the ruins, and other works or relics of prehistoric man on government lands within 5 miles of the boundaries of the park.

2. Permits for the examination of ruins, the excavation of archæological sites, and the getting of objects of antiquity, will, upon application to the Secretary of the Interior through the superintendent of the park, be granted to accredited representatives of reputable museums, universities, colleges, or other recognized scientific or educational institutions, with a view to increasing the knowledge of such objects and aiding the general advancement of archæological science, under the conditions and restrictions contained in present or future regulations promulgated by the Secretary of the Interior to carry out the provisions of the act of Congress approved June 8, 1906, entitled "An act for the preservation of American antiquities."

3. Persons bearing archæological permits from the department may be permitted to enter the ruins unaccompanied after presenting their credentials to the superintendent or other park officer. Persons without archæological permits who wish to visit and enter the ruins shall in all cases be accompanied by a park ranger or other person duly authorized by the superintendent.

4. The superintendent is authorized, in his discretion, to close any ruin on government lands within the park or the 5-mile limit to visitors when it shall appear to him that entrance thereto would be dangerous to visitors or might result in injury to walls or other insecure portions thereof or during repairs.

5. The superintendent is authorized, in his discretion, to designate the place or places to be used by campers in the park and where firewood can be obtained by them. All garbage and refuse must be deposited in places where it will not be offensive to the eye or contaminate any water supply on the park lands.

6. It is forbidden to cut or injure any timber growing on the park lands, except as provided in paragraph 5 of these regulations, but dead or fallen timber may be taken by campers for fuel without obtaining permission therefor.

7. Fires should be lighted only when necessary and completely extinguished when not longer required. The utmost care must be taken at all times to avoid setting fire to the timber and grass.

8. Hunting or killing, wounding or capturing, any bird or wild animal on the park lands, except dangerous animals when necessary to prevent them from destroying life or inflicting an injury, is prohibited. The outfits, including guns, traps, teams, horses, or means of transportation used by persons engaged in hunting, killing, trapping, ensnaring, or capturing such birds or wild animals, or in possession of game killed on the park lands under other circumstances than those prescribed above, will be taken up by the superintendent and held subject to the order of the Secretary of the Interior, except in cases where it is shown by satisfactory evidence that the outfit is not the property of the person or persons violating this regulation and the actual owner thereof was not a party to such violation. Firearms will be permitted in the park only on written permission from the superintendent.

9. No person shall be permitted to reside permanently or to engage in any business on the government lands in the park without permission, in writing, from the Secretary of the Interior. The superintendent may grant authority to competent persons to act as guides and revoke the same in his discretion, and no pack trains will be allowed in the park unless in charge of a duly registered guide.

10. Owners of patented lands within the park limits are entitled to the full use and enjoyment thereof; such lands, however, shall have the metes and bounds thereof so marked and defined as to be readily distinguished from the park lands. Stock may be taken over the park lands to patented lands with the written permission and under the supervision of the superintendent.

11. The herding or grazing of loose stock or cattle of any kind on the government lands within the park, as well as the driving of such stock or cattle over the same, is strictly forbidden, except in such cases where authority therefor is granted by the superintendent.

12. The sale of intoxicating liquors on the government lands in the park is strictly forbidden.

13. Private notices or advertisements shall not be posted or displayed on the government lands within the park, nor upon or about ruins or government lands within the 5-mile strip surrounding the same, except such as may be necessary for the convenience and guidance of the public.

14. Persons who render themselves obnoxious by disorderly conduct or bad behavior, or who may violate any of the foregoing rules, will be summarily removed from the park and will not be allowed to return without permission, in writing, from the Secretary of the Interior or the superintendent of the park.

15. The act creating the park provides that any person or persons who may, without having secured proper permission from the Secretary of the Interior, willfully remove, disturb, destroy, or molest any of the ruins, mounds, buildings, graves, relics, or other evidences of an ancient civilization or other property in said park shall be deemed

guilty of a misdemeanor, and upon conviction before any court having jurisdiction of such offenses shall be fined not more than $1,000 or imprisoned not more than twelve months, or such person or persons may be fined and imprisoned, at the discretion of the court, and shall be required to restore the property destroyed, if possible.

Any person or persons guilty of such vandalism upon government lands within the 5-mile strip will be liable to a penalty of $500 or imprisonment of not more than ninety days, or both, in the discretion of the court, as provided in the act of Congress approved June 8, 1906, entitled "An act for the preservation of American antiquities."

16. The superintendent designated by the Secretary of the Interior is hereby authorized and directed to remove all trespassers from the government lands in the park and to enforce these rules and regulations and all the provisions of the act of Congress creating the same.

The Indian police and field employees of the General Land Office are required to cooperate with the superintendent in the enforcement of these regulations as regards the 5-mile strip surrounding the park.

REGULATIONS OF MARCH 19, 1908, GOVERNING THE IMPOUNDING AND DISPOSITION OF LOOSE LIVE STOCK.

Horses, cattle, or other domestic live stock running at large or being herded or grazed on the government lands in the Mesa Verde National Park without authority from the superintendent of the park will be taken up and impounded by the superintendent, who will at once give notice thereof to the owner, if known. If the owner is not known, notice of such impounding, giving a description of the animal or animals, with the brands thereon, will be posted in six public places inside the park and in two public places outside the park.

Any owner of an animal thus impounded may, at any time before the sale thereof, reclaim the same upon proving ownership and paying the cost of notice and all expenses incident to the taking up and detention of such animal, including the cost of feeding and caring for the same. If any animal thus impounded should not be reclaimed within thirty days from notice to the owner or from the date of posting notices, it shall be sold at public auction at such time and place as may be fixed by the superintendent after ten days' notice, to be given by posting notices in six places in the park and two public places outside of the park and by mailing to the owner, if known, a copy thereof.

All money received from the sale of such animals and remaining after the payment of all expenses incident to the taking up, impounding, and selling thereof shall be carefully retained by the superintendent in a separate fund for a period of six months, during which time the net proceeds from the sale of any animal may be claimed by and paid to the owner upon the presentation of satisfactory proof of ownership; and if not so claimed within six months from the date of sale, such proceeds shall be turned into the Mesa Verde National Park fund.

The superintendent shall keep a record in which shall be set down a description of all animals impounded, giving the brands found on them, the date and locality of the taking up, the date of all notices and manner in which they were given, the date of sale, and the name and address of the purchaser, the amount for which each animal was sold, and the cost incurred in connection therewith, and the disposition of the proceeds.

The superintendent shall in each instance make every reasonable effort to ascertain the owner of animals impounded and give actual notice thereof to such owner.

PUNISHMENT FOR DEPREDATIONS AND FOR NOT EXTINGUISHING FIRES ON PUBLIC LANDS, ETC.

[Excerpt from an act entitled "An act to provide for determining the heirs of deceased Indians, for the disposition and sale of allotments of deceased Indians, for leasing of allotments, and for other purposes." Approved June 25, 1910 (36 Stat., 857).]

SEC. 6. That section fifty of the act entitled "An act to codify, revise, and amend the penal laws of the United States," approved March fourth, nineteen hundred and nine (Thirty-fifth United States Statutes at Large, page one thousand and ninety-eight), is hereby amended so as to read:

SEC. 50. Whoever shall unlawfully cut, or aid in unlawfully cutting, or shall wantonly injure or destroy, or procure to be wantonly injured or destroyed, any tree, growing, standing, or being upon any land of the United States which, in pursuance of law, has been reserved or purchased by the United States for any public use, or upon any Indian reservation or lands belonging to or occupied by any tribe of Indians under the authority of the United States, or any Indian allotment while the title to the same shall be held in trust by the Government, or while the same shall remain inalienable by the allottee without the consent of the United States, shall be fined not more than five hundred dollars, or imprisoned not more than one year, or both.

That section fifty-three of said act is hereby amended so as to read:

SEC. 53. Whoever shall build a fire in or near any forest, timber, or other inflammable material upon the public domain, or upon any Indian reservation, or lands belonging to or occupied by any tribe of Indians under the authority of the United States, or upon any Indian allotment while the title to the same shall be held in trust by the Government, or while the same shall remain inalienable by the allottee without the consent of the United States, shall, before leaving said fire, totally extinguish the same; and whoever shall fail to do so shall be fined not more than one thousand dollars, or imprisoned not more than one year, or both.

EXCERPT FROM THE DEFICIENCY APPROPRIATION ACT, APPROVED JUNE 25, 1910.

The Secretary of the Interior may, upon terms and conditions to be fixed by him, grant leases and permits for the use of the land or development of the resources thereof in the Mesa Verde National Park, and the funds derived therefrom shall be covered into the Treasury of the United States: *Provided*, That such leases or grants shall not include any of the prehistoric ruins in said park or exclude the public from free or convenient access thereto; for necessary expenses hereunder there is appropriated the sum of two thousand dollars, to continue available during the fiscal year nineteen hundred and eleven.

REPORT OF THE SUPERINTENDENT OF THE CRATER LAKE NATIONAL PARK.

REPORT OF THE SUPERINTENDENT OF THE CRATER LAKE NATIONAL PARK.

Crater Lake National Park,
Office of Superintendent,
Crater Lake, Oreg., October 15, 1910.

Sir: I have the honor to submit the annual report on the conditions existing in the Crater Lake National Park from July 1, 1909, to October 15, 1910:

GENERAL STATEMENT.

The Crater Lake National Park was created by act of Congress approved May 22, 1902. It is situated in Klamath County, Oreg., and has an area of 249 square miles, or 159,360 acres.

Crater Lake is near the summit of the Cascade Range, in the crater of an extinct volcano which is estimated to have been more than 16,000 feet high. The lake, which is practically in the center of the park, is approximately 6 miles long and 4 miles wide, and has a water surface of 20½ square miles. The lake is 6,177 feet above sea level and the depth of the water is 2,001 feet. The almost vertical walls of the great caldera in which the lake is situated rise from 1,000 to 2,000 feet above the surface of the water.

Crater Lake was first discovered by John Hilman, the leader of a party of gold hunters, on June 12, 1853, and was next seen by white men October 1, 1862, by Chauncey Nye and his party of prospectors and miners. It was known by some of the officers and enlisted men of Fort Klamath, Oreg., as early as 1865, but did not come into much prominence until about 1885, since which time many thousands of visitors and admirers have been attracted to its shores by its beauty and grandeur.

Crater Lake is 498 miles north of San Francisco, Cal., and is reached by way of the Southern Pacific Railroad, 436 miles, to Klamath Falls, Oreg., thence by steamer across Klamath Lake to Agency Landing, thence by automobile or team via Fort Klamath. The lake is 62 miles from Klamath Falls and 22 miles from Fort Klamath.

The Crater Lake National Park is 416 miles south of Portland, Oreg., and is reached by way of the Southern Pacific Railroad to Medford, 332 miles, or to Ashland, 344 miles; thence by automobile or team.

The lake is 84 miles from Medford and 96 miles from Ashland.

REPAIRS AND IMPROVEMENTS.

On July 1, 1909, the date of the opening of the tourist and working season, it was found that all the government buildings in the park had been seriously damaged by the great weight of the snow of the preceding winter. Since July 1, 1909, the condition and the work of the protection and improvement of the park have been as follows:

Immediately after July 1 I proceeded to put all roads, trails, and bridges in the reserve in the best possible condition. Lumber and other building materials were purchased and workmen employed, and the necessary repairs and improvements upon the buildings and fences have been continuously and vigorously prosecuted to the present time. It is believed that hereafter the buildings will be uninjured by the severe winter weather, as heavier and better timbers have been used, the roofs have been made steeper, and the workmanship has been first class in every respect.

The cost of the season's work to October 1 has been practically $1,100, divided approximately as follows: Repairs and improvements upon buildings, including materials, $700; repairs upon roads, trails, bridges, and fences, $300; purchase of necessary tools and implements, $100.

On October 1, 1909, travel in the park was practically ended for the season. During October there were heavy rains and snows and for a considerable portion of the time the ground was covered with from 6 inches to a foot of snow.

The preparations for winter were carried on to the best possible advantage, and on November 8 the work of closing was completed and the superintendent left the park for his winter quarters at Klamath Falls. At that time the snow was 2½ feet deep at the headquarters in the park and was falling at the rate of 2 inches an hour.

The entire park was closed to travel until April, 1910, when some of the lower lands were accessible, but it was still impossible to reach the headquarters in the park, as the snow was still very deep and soft.

During May I succeeded in reaching the headquarters and remained a part of the month in the park. On June 2 a work camp was established in the reserve, and during the month the roads and trails were cleared of the fallen trees and logs that had accumulated during the winter. The flooring of all the bridges was replaced and the roads and trails were otherwise repaired and improved and put in fairly good condition for travel.

FOREST FIRES.

Forest fires have been more numerous and damaging in the forest reserve and the surrounding forests than has ever before been known, although the forest fires in the park this season have done no great amount of damage.

GUARDING THE PARK.

The many duties and contingencies constantly arising along the line of the work of park ranger made it impossible to maintain a sufficient guard over the park with the very inadequate force of one ranger. There should be at the least one permanent park ranger and two temporary rangers to remain on duty from July 1 to September 30 of each year; and, in addition, I recommend that at least one company of soldiers be detailed to duty in this park, to the end that outposts may be established along the lines of the reserve in the more remote sections, the men to act as scouts, game wardens, and fire guards and to do general ranger duty.

OBSERVANCE OF RULES AND REGULATIONS.

There have been no arrests or trials of offenders during the last season, and so far as known there have been no violations of the rules.

The regulations are seldom intentionally violated, but it is difficult to prevent the cutting of the bushes and boughs for beds about the camping places, and to keep persons from painting, carving, and writing names and other things upon rocks, trees, banisters, or boats or other objects. The proper regulation of the carrying of firearms through the park is becoming a problem, as the road through the park is the only one between the settlements lying on one side of the park and the hunting grounds of the Cascade Mountains on the other.

During the last season all guns were taken at the superintendent's office, checked, and returned upon presentation of the coupon when the visitor was ready to depart from the park. At one time there were more than 40 guns in the office. Some good gun seals could be used to advantage in handling this perplexing question.

TELEPHONE SERVICE.

There is a telephone line maintained by the Klamath Telegraph and Telephone Company from Fort Klamath to the superintendent's headquarters in the reserve, and this is connected with a private line constructed by the Crater Lake Company, which extends to the camp at the rim of the crater, thus connecting the superintendent's headquarters and all the camps with Fort Klamath, Klamath Falls, and the outside world.

CONCESSIONS.

There were only two concessions held in the park during the past season, both being held by the Crater Lake Company, one for maintaining permanent camps (hotels) in the park and the operation of gasoline launches and rowboats upon Crater Lake for the accommodation of visitors in the reserve; the other was for transporting passengers in and through the park in automobiles. A license fee of $10 each has been charged upon the three automobiles used in such transportation business in the reserve during the season.

HOTELS.

There are two camp hotels in the park, one at Camp Arant, near the superintendent's headquarters, and one at Camp Crater, 5 miles distant, at the rim of the crater. The camp at Camp Crater was first opened on July 20, 1909. During the season of 1909 there were 419 persons accommodated at Camp Arant and 125 persons at Camp Crater. During the season now ending 716 guests were accommodated at these camps up to October 1, 1910.

VISITORS.

During the season of 1909 the number of tourists in the park, as shown by the government register, was as follows: June, 163; July, 774; August, 2,350; September, 984; total, 4,171. If a reasonable allowance is made for persons not registered, it is safe to say that during the season there were at the least 5,000 persons in the reserve. Comparatively few persons camped in the park for three days or more; a great many came in and went out the same day, and very few camped in the reserve more than one night; by October 1, 1909, the travel in the park was practically ended for the season.

During the season of 1910 the travel in the park appears to be about the same as during the season of 1909, although the government register does not show that there were quite as many names registered, the number registering this year being 4,171.

To about August 24 the number traveling in the park was fully equal to that of any previous season, but at this time the forest fires situation became so alarming and dangerous in the mountains adjacent to the park that for a period of two weeks or more there was scarcely any travel in the reserve.

Another reason that the registration does not run as high as it should is the very limited ranger force, and having the forest fires to contend with in addition to many other duties many in the park were not called upon to register.

If due allowance is made for all persons who from one cause or another were not registered, it would be a conservative estimate to place the number in the reserve during the season of 1910 at 5,000 persons.

DRIVING LIVE STOCK THROUGH THE PARK.

There has been one herd of cattle driven through the park by proper authority from western Oregon to the summer range east of the Cascade Mountains. They were driven over the Rogue River and Fort Klamath wagon road and the owners and drovers have complied with the terms of their permit and the rules and regulations of the park.

ROADS, TRAILS, AND BRIDGES.

There are three wagon roads in the park—one running from the south line of the park, a distance of 8 miles, to the superintendent's headquarters; one from the superintendent's headquarters, a distance of 5 miles, to the rim of the crater at Crater Lake; and one from the headquarters in the park to the west line of the park in the direction of Medford, Oreg., a distance of about 7 miles.

During the past season all of these roads have been kept in as good condition for travel as was possible with the very small working force available. These roads should be widened and straightened. The soil which forms the surface of these roads is of lava or volcanic formation, and vehicles passing soon cut the surface and convert it into a very fine and deep dust. During the past season the very dusty condition of the roads was the most disagreeable feature of traveling in the park. There being an abundance of water at convenient places I recommend that three good road sprinklers be purchased and that these roads be thoroughly sprinkled during the season of 1911. The cost of such improvement would be nominal in comparison to the benefit received by the traveling public.

There are four trails in the reserve. One runs from the wagon road 3 miles south of the lake to Garfield Peak, Applegate Peak, Sun Creek, Sand Creek, The Pinnacles, and Mount Scott in the eastern portion of the park, a distance of 10 miles. One runs from the superintendent's headquarters to Union Peak in the western portion of the park, a distance of 5 miles. A third runs from the superintendent's headquarters to Bybee Creek and Bybee Prairie in the northwest portion of the park, a distance of 8 miles. One trail runs from the rim of the crater to the shore of Crater Lake. All these trails, excepting the last named, are little more than mere horse tracks, very little improvement work ever having been done on them.

The trail from the rim to the water's edge is one that is much used and as at present located is 3,580 feet in length. At the rim it is 1,011 feet above the water.

Under charge of Maj. J. J. Morrow, Corps of Engineers, U. S. Army, there is now being located and surveyed a system of roads and trails; and under direction of Mr. H. L. Gilbert, chief of engineers in the field, a trail was located and surveyed in the month of August. Until the close of the working season I have had a small force of men working upon the construction of this trail.

This new trail, when completed, will be broad, smooth, and of easy and safe grade. It has been finished about two-thirds of the distance from the summit or rim of the crater down to the water of the lake. It will be one of the best pieces of improvement work that has ever been done in the park.

During the winter and spring this trail is always considerably washed out and injured by the rains and melting snows. Considerable repair work will be necessary besides the remaining construction work.

There are 13 bridges upon the roads in the reserve ranging from 16 to 104 feet in length. No new bridges have been built this season, and only small amount of repair work has been necessary, but the bridges will require considerable repair and improvement work during the season of 1911.

BUILDING AND FENCING.

In the spring of 1909 all the buildings at the superintendent's headquarters in the park were found to be very seriously damaged by the snows of the preceding winter. During the season of 1909 repairs to all the framing and to the outside work were completed. All was done that was necessary to give them the strength to resist the great weight of the snow, but owing to a lack of funds the materials for the inside finishing were not purchased, nor was the finishing work done last season. This season all materials necessary for the work have been purchased and all the woodwork upon the buildings has been completed and some of the painting has been done, though some additional painting will be necessary during the next season.

The small amount of fencing in the reserve was properly repaired in the beginning of the season and is now in good condition.

ANIMALS AND BIRDS.

Greater numbers of both bear and deer have been seen in the park during the past summer than during any previous season; it is therefore believed that both of these species of animals are increasing in the reserve. A good many pine martin, fisher, and timber squirrels have been seen, and since trapping has been prohibited in the park it is reasonable to believe that they, too, are increasing.

Grouse and native pheasants and some other upland birds appear to be more plentiful than during former seasons.

All the animals and birds are much tamer than during the former seasons.

FISH AND FISHING.

The species of fish in Crater Lake are the rainbow trout and lake trout. There were no fish in the lake until they were planted there, the first few in 1887 and a larger number in 1893. In Lower Anna Creek are the Dolly Varden trout. Fishing in Crater Lake is permitted under the following rules: Open season from July 1 to September 30 with hook and line only, the catch of each angler being limited to five fish in any one day. During this month 50,000 fry of the rainbow trout have been planted in Crater Lake by Mr. A. L. Parkhurst, of the Crater Lake Company.

PATENTED LANDS IN THE PARK.

There are approximately 1,337 acres of patented lands in the southeastern corner of the park; these lands are mainly timber lands and, so far as known, there is no one living permanently upon them within the limits of the park, but there is a possibilty that there may be summer homes built upon some of them in the near future.

The situation in regard to these patented lands is about as it was a year ago, excepting that there is now and then a tract of it going into the hands of some timber speculator. There are 1,121.11 acres of unperfected bona fide claims.

I can not urge too strongly the acquisition of these lands by the Government.

ACCIDENTS.

By observing the utmost caution in regard to the quality, condition, and the management of all boats upon the lake and all automobiles and other conveyances used upon the roads, it is a pleasure to note that no accidents have occurred in the park during the season.

RECOMMENDATIONS.

That a company of soldiers be detailed to duty in this park during the season of 1911 to act as scouts, game wardens, and fire guards, and for general park ranger duty.

That the patented lands in the southeastern corner of the park be purchased by the Government.

That the boundaries of the park be extended west and north so as to take in sufficient territory on the western and lower slope of the Cascade Mountains for a game preserve.

That Crater Lake be stocked with the small brown crawfish for fish food, and that upper Anna Creek, East Anna Creek, Sand Creek, and Castle Creek be stocked with eastern brook trout.

Estimates of appropriations for necessary improvements and a proper administration of the affairs of the park have previously been submitted.

Very respectfully,

W. F. Arant,
Superintendent Crater Lake National Park.

The Secretary of the Interior.

REPORT OF SPECIAL INSPECTOR OF THE DEPARTMENT ON POWER DEVELOPMENT AND ROADS.

FEDERAL BUILDING, SPOKANE, WASH.,
September 17, 1910.

SIR: In accordance with your verbal instructions of August 30, 1910, the following preliminary report on the proposed hydro-electric power development, and roads in the Crater Lake National Park, Oregon, is respectfully submitted:

HYDRO-ELECTRIC POWER DEVELOPMENT.

The water supply for the proposed power development will be taken from Anna Creek, which has its source in a large spring issuing from a hill which forms the base of the Crater Lake rim, near Camp Arant. The spring is approximately 5 miles from the camp at Crater Lake.

The writer visited Anna Creek during, perhaps, the extreme low water (September 3 and 4) and estimates the flow at that time to be approximately 6 second-feet. By going down the stream approximately 1,500 feet a head of about 80 feet may be attained. With a flow of 6 second-feet and an 80-foot head these will produce approximately 54.5 theoretical horsepower. With an efficiency of 70 per cent the output of such a plant is approximately 38.1 horsepower. One electrical horsepower is equal to one mechanical horsepower, which is equal to 746 watts. As the common 110-volt lamp consumes approximately 56.1 watts, one horsepower will furnish light for 13.3 lamps. Therefore a plant of 38.1 horsepower will operate 507 110-volt, 16-candlepower lamps.

Mr. Alfred L. Parkhurst, manager of the Crater Lake Company, informs me that his company will need about 300 110-volt, 16-candlepower lamps. Such a plant as described above would operate the 300 lamps, and supply in addition approximately 15.5 horsepower for power purposes. It will be seen that such a plant would be useful only for lighting purposes, and this on a very small scale.

If such a plant is constructed it will take all the water from Anna Creek, and convert a very pretty little stream, crossed by the main road to the lake proper, into a dry gulch. By throwing an artistic dam across Anna Creek a very pretty little lake could be formed in Anna Creek canyon, and the small reservoir would be an advantage in the operation of such a plant.

The evil of depriving Anna Creek of its waters at this point can be overcome and a plant of larger capacity can be built at the falls of Anna Creek, about 5 or 6 miles below Camp Arant. Numerous springs which enter Anna Creek between its head and the falls materially increase the discharge of the stream at the falls. I did not gauge the stream at the falls (because I did not have this information until I was leaving the park, not having seen Superintendent Arant before). Superintendent Arant told me that the fall at this point on Anna Creek is between 60 and 70 feet, and that the discharge is five or six times that of the spring at the head of Anna Creek. This would give a low-water discharge of about 30 or 40 second-feet. With a head of 60 feet and a discharge of 30 second-feet, a plant at this point would develop approximately 205 theoretical horsepower; with an efficiency of 70 per cent the output of such a plant would be approximately 145 horsepower, or an increase in the output of the plant over the one at Camp Arant of 107 horsepower.

The plant at the falls on Anna Creek would require a transmission line 5 or 6 miles longer than a plant located at Camp Arant, but the falls or near the falls is the logical point for such a plant, and I recommend that any further investigation of such a project be made at the falls of Anna Creek and not at Camp Arant.

Before permission is granted to this company to install such a plant it should submit to the Secretary for his approval complete plans and specifications and the report of the engineer who prepared them. During the progress of the work a representative of the department should be on the ground to see that the work is properly done in accordance with plans and specifications, or else occasional inspection trips should be made by the department's representative.

ROADS.

At the present time the principal routes to Crater Lake National Park are from Medford, Oreg., on the Southern Pacific Railroad, by automobile, stage, or team (distance from Medford to Crater Lake is approximately 84 miles), and by way of Klamath Lake. The trip via Klamath is as follows: From Weed, on the Southern Pacific Railroad, to Klamath Falls, Oreg., by rail; from Klamath Falls to Agency Landing by boat; from Agency Landing to Crater Lake by automobile, stage, or team—distance, approximately 34 miles. There is also a steam railroad under construction from Medford, Oreg., to Crater Lake.

The road from Medford, Oreg., to the park boundary has long, steep grades, many chuck holes, and in places is much too narrow. Generally speaking, it is a very poor road. At the time I was there (September 3 and 4) the State had grade stakes set for a regrade of the old road to the park boundary. On this part of the road, approximately 75 miles, from Medford to the lake, is by far the most difficult construction. From the park boundary to a point a short distance beyond Camp Arant, approximately 6 miles, the present road is narrow and winds among the trees, making transportation by automobile slow, but it is in very good condition and traverses practically level, smooth country, through which a good road can be very cheaply constructed. From Camp Arant to the lake, approximately 4 miles, the country traversed is very steep and hilly, but if the road is carefully located easy grades can be established, and the construction is not difficult.

For about the first 5 miles of the road material for macadam can not be obtained close to the road, and it will probably have to be hauled some distance. There is plenty of rock for macadam close to the present road for the 5 miles from Camp Arant to the lake. The best available rock for the macadam is the basalt, some of which is very hard and will make very good road metal. By careful selection suitable material can be found for macadam. Little or no money should be expended on these roads until a complete and comprehensive road plan for the entire park is worked out.

The road from Camp Arant to Agency Landing on Klamath Lake follows the right side of Anna Creek Canyon. At present it is too far from the canyon side to afford a view of the beautiful canyon from the stage. If this road is reconstructed it should be relocated nearer to Anna Creek Canyon rim.

Within the park limits this road traverses a smooth, gently sloping country through which a good road could be easily constructed at a reasonable cost. There is rock for macadam very close to the road and by careful selection suitable material can probably be found close at hand. The length of this road within the limits of the park—Crater Lake to boundary—is approximately 10 miles. At the present time it is in very fair condition for travel.

BRIDGES.

At the present time there are only a few bridges over the above roads within the park limits. I think only two or three. While these are serviceable, they are unsightly, shaky, and should be replaced as soon as possible by artistic structures. A small sawmill should be installed in the park to saw up the ripe timber for the construction of bridges, buildings, etc., within the park.

FUTURE PLANS.

At the last session of Congress an appropriation of $10,000 was made to be expended under the direction of the Secretary of War, by the Chief of Engineers, United States Army, for a preliminary survey of roads and trails in the park. On September 3 and 4, when the writer was in the park, a corps of civilian engineers were engaged in locating the road around the rim of Crater Lake. This road should be a first-class macadam or oiled macadam road, and should keep the lake in view even at considerable additional expense for construction. These surveys are being made under the personal supervision of Maj. J. J. Morrow, Corps of Engineers, U. S. Army.

While these road surveys are in progress it would be economy to have a general plan for a sewer system, water-supply system, and road-sprinkling system worked up at the same time, and make the future villages and camps conform themselves to these general plans. There is no better time to do these things than at present.

CONCLUSIONS AND RECOMMENDATIONS.

It is recommended that the Crater Lake Company be permitted to develop power on Anna Creek, and that the plant be located near the falls, such permit to be granted when the company submits complete plans, specifications, and the engineer's report. Said installation to be under the direction of the department's representative.

That a complete and comprehensive road and trail plan together with specifications be prepared and approved for the entire park before any extensive construction is undertaken.

That complete and comprehensive plans and specifications be prepared and approved for a sewer system, water supply, and road-sprinkling system before any other work is undertaken and before the park becomes settled. After the plans and specifications are approved the work should be executed under the personal supervision of a competent engineer. The work of the engineer should be inspected occasionally by the department's representative from time to time. No makeshift construction should be allowed in the park. This applies especially to the roads, sewer system, water supply, and hydro-electric power development. Whatever work is done should be performed in the best possible, economical manner. I recommend that the highways be constructed in accordance with plans and specifications similar to those of the Massachusetts state highway commission, where a purely macadamized highway is constructed. I also recommend careful consideration of the various forms of oiled macadam roads. By this I do not mean a macadam road merely sprinkled with oil, but one in which the asphalt oil is so incorporated throughout the body of the road that practically an asphalt concrete is formed, which practically overcomes the dust—such a road as that known as the "Oileroid" or "Petrolitlic."

The general plan for the roads in this park should establish a maximum width for the macadamized part of the road. Where the topography will permit I think the width of these roads should not exceed 14 feet for the macadamized part, certainly not to exceed 16 feet for the macadamized part of the roads. Where the roads traverse steep slopes, endangering human life in case of accident, this width, of course, should be increased somewhat. In such cases a width of 20 feet would, perhaps, be safe.

In estimating the cost of macadam road or oiled macadam roads in this vicinity I think $1.25 per square yard can be relied on to cover the macadamized part. The cost of the grading, of course, depends upon the topography.

Very respectfully,

E. A. Key,
Special Inspector.

The Secretary of the Interior.

RULES AND REGULATIONS.

GENERAL REGULATIONS OF JUNE 10, 1908.

By act of Congress approved May 22, 1902, the tract of land bounded north by the parallel forty-three degrees four minutes north latitude, south by forty-two degrees forty-eight minutes north latitude, east by the meridian one hundred and twenty-two degrees west longitude, and west by the meridian one hundred and twenty-two degrees sixteen minutes west longitude, having an area of 249 square miles, in the State of Oregon, and including Crater Lake, has been reserved and withdrawn from settlement, occupancy, or sale under the laws of the United States, and dedicated and set apart forever as a public park or pleasure ground for the benefit of the people of the United States, to be known as "CRATER LAKE NATIONAL PARK."

The park by said act is placed under the exclusive control of the Secretary of the Interior, and these rules and regulations are made and published in pursuance of the duty imposed on him in regard thereto.

1. It is forbidden to injure, or destroy in any manner, any of the natural curiosities or wonders within the park, or to disturb the mineral deposits in the reservation, except under the conditions prescribed in paragraph 11 of these regulations.

2. It is forbidden to cut or injure any timber growing on the park lands, except for use in the construction of places of entertainment and in connection with the working of located mining claims, or to deface or injure any government property. Camping parties and others on the reservation will be allowed to use dead or fallen timber for fuel, in the discretion of the superintendent.

3. Fires should be lighted only when necessary and completely extinguished when not longer required. The utmost care must be exercised at all times to avoid setting fire to the timber and grass.

4. Hunting or killing, wounding or capturing any bird or wild animal on the park lands, except dangerous animals when necessary to prevent them from destroying life or inflicting an injury, is prohibited. The outfits, including guns, traps, teams, horses, or means of transportation used by persons engaged in hunting, killing, trapping, ensnaring, or capturing such birds or wild animals, or in possession of game killed on the park lands under other circumstances than prescribed above, will be taken up by the superintendent and held subject to the order of the Secretary of the Interior, except in cases where it is shown by satisfactory evidence that the outfit is not the property of the person or persons violating this regulation and the actual owner thereof was not a party to such violation. Firearms will only be permitted in the park on written permission from the superintendent thereof.

5. Fishing with nets, seines, traps, or by the use of drugs or explosives, or in any other way than with hook and line, is prohibited. Fishing for purposes of merchandise or profit is forbidden. Fishing may be prohibited by order of the superintendent in any of the waters of the park, or limited therein to any specified season of the year, until otherwise ordered by the Secretary of the Interior.

6. No person will be permitted to reside permanently, engage in any business, or erect buildings, etc., upon the government lands in the park without permission, in writing, from the Secretary of the Interior. The superintendent may grant authority to competent persons to act as guides and revoke the same in his discretion. No pack trains will be allowed in the park unless in charge of a duly registered guide.

7. Owners of patented lands within the park limits are entitled to the full use and enjoyment thereof; such lands, however, shall have the metes and bounds thereof so marked and defined that they may be readily distinguished from the park lands. Stock may be taken over the park lands to patented lands with the written permission and under the supervision of the superintendent.

8. The herding or grazing of loose stock or cattle of any kind on the government lands in the park, as well as the driving of such stock or cattle over the same, is strictly forbidden, except in such cases where authority therefor is granted by the superintendent.

9. No drinking saloon or barroom will be permitted upon government lands in the park.

10. Private notices or advertisements shall not be posted or displayed on the government lands within the reservation, except such as may be necessary for the convenience and guidance of the public.

11. The act provides that, under such regulations as the Secretary of the Interior may prescribe, the reservation shall be open "to the location of mining claims and the working of the same." It was not the purpose of this provision to extend the mining laws to the park without limitation, but only to authorize the location and working of mining claims thereon, under regulations to be prescribed by the Secretary of the Interior, and in such manner as not to interfere with or prejudicially affect the general purpose for which the reservation was established. It is therefore prescribed:

(*a*) That persons desiring to locate mining claims within the park shall enroll their names and addresses with the superintendent of the reservation, and shall file with such superintendent a description, in writing, of the land desired to be located. They shall also file with the superintendent evidence that they are severally qualified to make locations under the mining laws, and before entering upon the park for such purpose they must obtain from the Secretary of the Interior, through the superintendent, a written permit to do so. Such permit will be issued only upon condition that the applicant or applicants therefor, while upon the reservation, will not destroy or damage any game, fish, timber, or natural objects therein, and will strictly observe and comply with the requirements of the law and these regulations.

(*b*) Lands in the park upon which valuable deposits of mineral shall have been or may be found may be located under the mining laws by any person or persons duly qualified and holding a permit such as is described in the preceding paragraph, and such person or persons, his or their successor or successors in interest, may work the claim or claims so located; but in carrying on the work he or they shall in all respects observe and comply with the provisions of the statute creating the park and with these regulations: *Provided*, That such person or persons may, as the proper working of such mining claim or claims shall require, be permitted to use, for mining purposes, such timber or stone found upon the land located as in the judgment of the superintendent may be so used without injury or damage to the reservation "as a public park or pleasure ground:" *And provided further*, That within thirty days after the location of any mining claim within the park, and before development work thereon shall be commenced, a copy of the notice of location shall be filed with the superintendent, together with proof satisfactorily showing that discovery of a valuable mineral deposit has been made within the limits of the location, and, if it be a placer location, that every 10-acre tract embraced therein has been found to contain valuable deposits of mineral.

(*c*) The statute does not authorize the purchase of or the acquisition of the legal title to lands located as mining claims within the park. The rights of the locator or locators, therefore, will be at all times subject to forfeiture upon breach of any of the conditions mentioned in the permit herein provided for, or upon refusal or failure to comply with any of the provisions of the statute or of these regulations.

(*d*) Upon breach of any such conditions, or upon refusal or failure to comply in all respects with the provisions of the statute and of these regulations, or where locators of mining claims do not appear to be acting in good faith, or who, after location, do not work their claims in such manner as to show good faith in the assertion thereof, the superintendent will revoke their permits, forthwith remove them from the park, and report the facts to the Secretary of the Interior.

12. Persons who render themselves obnoxious by disorderly conduct or bad behavior, or who violate any of the foregoing rules, will be summarily removed from the park and will not be allowed to return without permission, in writing, from the Secretary of the Interior or the superintendent of the park.

No lessee or licensee shall retain in his employ any person whose presence in the park shall be deemed and declared by the superintendent to be subversive of the good order and management of the reservation.

13. Any person who violates any of the foregoing regulations will be deemed guilty of a misdemeanor and, upon conviction, be fined not more than $500 or imprisoned not more than one year, and shall be liable for any loss sustained by the United States as a result of such violation, as provided by the act creating the park.

14. The superintendent designated by the Secretary is hereby authorized and directed to remove all trespassers from the government lands in the park and enforce these rules and regulations and all the provisions of the act of Congress aforesaid.

REGULATIONS OF JUNE 10, 1908, GOVERNING THE IMPOUNDING AND DISPOSITION OF LOOSE LIVE STOCK.

Horses, cattle, or other domestic live stock running at large or being herded or grazed in the Crater Lake National Park without authority from the Secretary of the Interior will be taken up and impounded by the superintendent, who will at once give notice thereof to the owner, if known. If the owner is not known, notice of such impounding, giving a description of the animal or animals, with the brands thereon, will be posted in six public places inside the park and in two public places outside the park. Any owner of an animal thus impounded may, at any time before the sale thereof, reclaim the same upon proving ownership and paying the cost of notice and all expenses incident to the taking up and detention of such animal, including the cost of feeding and caring for the same. If any animal thus impounded shall not be reclaimed within thirty days from notice to the owner or from the date of posting notices, it shall be sold at public auction at such time and place as may be fixed by the superintendent after ten days' notice, to be given by posting notices in six public places in the park and two public places outside the park, and by mailing to the owner, if known, a copy thereof.

All money received from the sale of such animals and remaining after the payment of all expenses incident to the taking up, impounding, and selling thereof shall be carefully retained by the superintendent in a separate fund for a period of six months, during which time the net proceeds from the sale of any animal may be claimed by and paid to the owner upon the presentation of satisfactory proof of ownership, and if not so claimed within six months from the date of sale such proceeds shall be turned into the Crater Lake National Park fund.

The superintendent shall keep a record in which shall be set down a description of all animals impounded, giving the brands found on them, the date and locality of the taking up, the date of all notices and manner in which they were given, the date of sale, the name and address of the purchaser, the amount for which each animal was sold and the cost incurred in connection therewith, and the disposition of the proceeds.

The superintendent will, in each instance, make every reasonable effort to ascertain the owner of animals impounded and to give actual notice thereof to such owner.

Application for permission to drive stock through the Crater Lake National Park, Oregon.

------------------------, 19--

The SUPERINTENDENT OF THE CRATER LAKE NATIONAL PARK.

SIR:

I, ------------------------------------, a citizen of the United States and a resident of --------------------, county of ------------------------, State of ------------------------, hereby make application for permission to drive ------------- head of loose stock or cattle over the main traveled wagon road leading through the Crater Lake National Park, Oregon, en route from ------------------ to --------------------; I hereby agree that I will cross the park boundary with my stock on the --------- day of -----------------, 19--, and will not occupy more than ----------- days in crossing the reservation; that I will cause the stock to be moved expeditiously over the road through the park, and will not allow the same to scatter, stop, graze, or pasture upon any of the places used or occupied by the public.

I further agree to observe and obey all the rules and regulations for the government of the Crater Lake National Park.

Approved and permit granted
--------------------, 19--

Superintendent.

PENALTY FOR DEPREDATIONS ON PUBLIC LANDS AND FOR NOT EXTINGUISHING FIRES ON PUBLIC LANDS.

[Excerpt from an act entitled "An act to provide for determining the heirs of deceased Indians, for the disposition and sale of allotments of deceased Indians, for the leasing of allotments, and for other purposes," approved June 25, 1910 (36 Stat., 857), providing punishment for depredations and for nonextinguishment of fires on public lands, etc.]

SEC. 6. That section fifty of the act entitled "An act to codify, revise, and amend the penal laws of the United States," approved March fourth, nineteen hundred and nine (Thirty-fifth United States Statutes at Large, page one thousand and ninety-eight), is hereby amended so as to read:

"SEC. 50. Whoever shall unlawfully cut, or aid in unlawfully cutting, or shall wantonly injure or destroy, or procure to be wantonly injured or destroyed, any tree growing, standing, or being upon any land of the United States which, in pursuance of law, has been reserved or purchased by the United States for any public use, or upon any Indian reservation, or lands, belonging to or occupied by any tribe of Indians under the authority of the United States, or any Indian allotment while the title to the same shall be held in trust by the Government, or while the same shall remain inalienable by the allottee without the consent of the United States, shall be fined not more than five hundred dollars, or imprisoned not more than one year, or both."

That section fifty-three of said act is hereby amended so as to read:

"SEC. 53. Whoever shall build a fire in or near any forest, timber, or other inflammable material upon the public domain, or upon any Indian reservation, or lands belonging to or occupied by any tribe of Indians under the authority of the United States, or upon any Indian allotment while the title to the same shall be held in trust by the Government, or while the same shall remain inalienable by the allottee without the consent of the United States, shall, before leaving said fire, totally extinguish the same; and whoever shall fail to do so shall be fined not more than one thousand dollars, or imprisoned not more than one year, or both."

is mean sea level.

REPORT ON GLACIER, WIND CAVE, AND PLATT NATIONAL PARKS, SULLYS HILL PARK, CASA GRANDE RUIN, MUIR WOODS, PETRIFIED FOREST, AND OTHER NATIONAL MONUMENTS.

REPORT ON GLACIER, WIND CAVE, AND PLATT NATIONAL PARKS, SULLYS HILL PARK, CASA GRANDE RUIN, MUIR WOODS, PETRIFIED FOREST, AND OTHER NATIONAL MONUMENTS.

GLACIER NATIONAL PARK.

GENERAL DESCRIPTION.

The Glacier National Park was created by the act of Congress approved May 11, 1910 (36 Stat., 354). It is located in northwestern Montana and embraces over 1,400 square miles of the Rocky Mountains, extending north from the main line of the Great Northern Railway to the Canadian border. It has an area of approximately 915,000 acres, of which 15,000 acres have been surveyed. The park is bounded on the north by the Canadian line, on the east by the Blackfeet Indian Reservation, on the west by the north fork of the Flathead River, and on the south by the Great Northern Railway's main transcontinental line. The extreme length of the park, north and south and east and west, is 50 to 60 miles. There are more than 60 glaciers in an area of about 5 square miles. Maj. William R. Logan, special inspector in charge of the construction of roads and trails, is the acting superintendent of the park. His address is Belton, Mont. The park can be reached via the Great Northern Railway. The tourist season extends from May 1 to about September 15.

Glacier National Park possesses many attractions for both scientist and tourist. In its confines are upward of 60 glaciers and a number of snow-capped mountain peaks, rising to a height of from 7,000 to 10,000 feet above sea level. The principal glaciers in the park are Blackfoot, Harrison, Pumpelly, Red Eagle, Sperry, and Chaney. Most of these will be accessible to the tourist by road and trail. These enduring masses of ice spill their chill waters over hundreds of cataracts, and down rollicking mountain streams, where trout abound, into clear, cold lakes that lie long and ribbonlike in the forested valleys.

Lake McDonald is one of the most beautiful lakes in the Northwest. It is about 3,150 feet above sea level, 12 miles long, being reached in about one hour from Belton Station by stage, the distance being about 3 miles. It is surrounded by mountains, and numerous trails lead away from it to the glaciers, lakes, and surrounding mountains. The air about Lake McDonald is remarkably pure and clear, and the fragrance of fir, pine, and cedar produces a refreshing and invigorating atmosphere.

Iceberg Lake is a small sheet of water about 16 miles north of Lake McDonald. It is so named because the great floes of glacial ice are to be seen on its surface in midsummer.

Avalanche Basin, a remarkable U-shaped valley, about 12 miles north of Lake McDonald, is one of the most attractive and impressing features of the park. Nestling in the valley below the basin lies Avalanche Lake, into which dash the cascades and cataracts that have their source in the glaciers above and rush down the ragged walls of the basin for over 2,400 feet.

The St. Mary Lakes lie on the eastern slope of the park, northwest of Midvale. The upper St. Mary Lake is 11 miles long, the lower lake 7 miles long. The area surrounding a portion of the lake is heavily forested, while in other sections the mountains rise sheer from the water's edge.

ROUTES AND ACCOMMODATIONS.

The Glacier National Park is easily accessible via the Great Northern Railway, the only line which touches its border. The main line of the Great Northern forms the southern boundary of the park. Midvale, Mont., located 1,119 miles from St. Paul, is the gateway to that portion of the park lying east of the transcontinental divide.

Wagon roads and trails wend through the foothills past the Two Medicine Lakes, a beautiful, rolling, and semimountainous section, to lower St. Mary Lake.

The western portion of the park is accessible via Belton and is 1,177 miles west of St. Paul.

There are several resorts on this lake at which accommodations can be had at from $2 to $3 per day. In addition to the hotels proper there are a number of small log-cabin cottages that can be rented by the week, either furnished or unfurnished if desired.

The stage fare from Belton to the foot of the lake is 50 cents each way and 50 cents for each piece of baggage. The steamer fare across the lake is 75 cents, or $1.25 for the round trip.

From the upper end of Lake McDonald interesting side trips may be made to different scenic portions of the park. Short trips can be made to Avalanche Basin, Sperry Glacier, Glacier Camp, and to several small lakes, where good fishing can be had. More extended trips, requiring from two days to one or two weeks, can be made to the north portion of the park, taking in such features as Granite Park, Chaney Glacier, and Iceberg Lake.

From Lake McDonald a trail also winds over the summit of the mountains across Gunsight Pass and down to the head of St. Mary Lakes, on the east side of the transcontinental divide. For these longer trips complete camping outfits are required, and the only method of transportation at present is the use of saddle horses and pack trains.

ACT APPROVED MAY 11, 1910, TO ESTABLISH "THE GLACIER NATIONAL PARK" IN THE ROCKY MOUNTAINS SOUTH OF THE INTERNATIONAL BOUNDARY LINE, IN THE STATE OF MONTANA, AND FOR OTHER PURPOSES.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the tract of land in the State of Montana particularly described by metes and bounds as follows, to wit: Commencing at a point on the international boundary between the United States and the Dominion of Canada at the middle of the Flathead River; thence following

southerly along and with the middle of the Flathead River to its confluence with the Middle Fork of the Flathead River; thence following the north bank of said Middle Fork of the Flathead River to where it is crossed by the north boundary of the right of way of the Great Northern Railroad; thence following the said right of way to where it intersects the west boundary of the Blackfeet Indian Reservation; thence northerly along said west boundary to its intersection with the international boundary; thence along said international boundary to the place of beginning, is hereby reserved and withdrawn from settlement, occupancy, or disposal under the laws of the United States, and dedicated and set apart as a public park or pleasure ground for the benefit and enjoyment of the people of the United States under the name of "The Glacier National Park;" and all persons who shall locate or settle upon or occupy the same, or any part thereof, except as hereinafter provided, shall be considered trespassers and removed therefrom: *Provided*, That nothing herein contained shall affect any valid existing claim, location, or entry under the land laws of the United States or the rights of any such claimant, locator, or entryman to the full use and enjoyment of his land: *Provided further*, That rights of way through the valleys of the North and Middle forks of the Flathead River for steam or electric railways may be acquired within said Glacier National Park under filings or proceedings heretofore or hereafter made or instituted under the laws applicable to the acquisition of such rights over or upon the unappropriated public domain of the United States, and that the United States Reclamation Service may enter upon and utilize for flowage or other purposes any area within said park which may be necessary for the development and maintenance of a Government reclamation project: *And provided further*, That no lands within the limits of said park hereby created belonging to or claimed by any railroad or other corporation now having or claiming the right of indemnity selection by virtue of any law or contract whatsoever shall be used as a basis for indemnity selection in any State or Territory whatsoever for any loss sustained by reason of the creation of said park.

SEC. 2. That said park shall be under the executive control of the Secretary of the Interior, whose duty it shall be, as soon as practicable, to make and publish such rules and regulations not inconsistent with the laws of the United States as he may deem necessary or proper for the care, protection, management, and improvement of the same, which regulations shall provide for the preservation of the park in a state of nature so far as is consistent with the purposes of this act, and for the care and protection of the fish and game within the boundaries thereof. Said Secretary may, in his discretion, execute leases to parcels of ground not exceeding ten acres in extent at any one place to any one person or company, for not to exceed twenty years, when such ground is necessary for the erection of buildings for the accommodation of visitors, and to parcels of ground not exceeding one acre in extent and for not to exceed twenty years to persons who have heretofore erected or whom he may hereafter authorize to erect summer homes or cottages; he may also sell and permit the removal of such matured or dead or down timber as he may deem necessary or advisable for the protection or improvement of the park.

Approved, May 11, 1910.

RULES AND REGULATIONS OF THE GLACIER NATIONAL PARK, MONTANA.

GENERAL REGULATIONS OF DECEMBER 3, 1910.

The following rules and regulations for the government of the Glacier National Park are hereby established and made public, pursuant to authority conferred by the act of Congress approved May 11, 1910:

1. It is forbidden to injure or disturb in any manner any of the mineral deposits, natural curiosities, or wonders on the Government lands within the park.

2. It is forbidden to cut, without a permit from the Secretary of the Interior or his authorized representative, any timber growing on the park lands; it is also forbidden to injure any growing timber or deface or injure any Government property. Camping parties will be allowed to use dead or fallen timber for fuel. When felling timber, stumps must not be left higher than 12 inches from the ground.

3. Fire should be lighted only when necessary and completely extinguished when not longer required. The utmost care must be exercised at all times to avoid setting fire to the timber and grass.

4. Hunting or killing, wounding or capturing any bird or wild animal on the park lands, except dangerous animals when necessary to prevent them from destroying life or inflicting an injury, is prohibited. The outfits, including guns, traps, teams, horses, or means of transportation used by persons engaged in hunting, killing, trapping, ensnaring, or capturing such birds or wild animals, or in possession of game killed on the park lands under other circumstances than prescribed above, will be taken up by the superintendent and held subject to the order of the Secretary of the Interior, except in cases where it is shown by satisfactory evidence that the outfit is not the property of the person or persons violating this regulation and the actual owner thereof was not a party to such violation. Firearms will only be permitted in the park on written permission from the superintendent thereof. On arrival at the first station of the park guard, parties having firearms, traps, nets, seines, or explosives will turn them over to the officer in charge of the station, taking his receipt for them. They will be returned to the owners on leaving the park.

5. Fishing with nets, seines, traps, or by the use of drugs or explosives, or in any other way than with hook and line, is prohibited. Fishing for purposes of merchandise or profit is forbidden. Fishing may be prohibited by order of the superintendent in any of the waters of the park, or limited therein to any specified season of the year, until otherwise ordered by the Secretary of the Interior.

6. No person will be permitted to reside permanently, engage in any business, or erect buildings, etc., upon the Government lands in the park without permission in writing from the Secretary of the Interior. The superintendent may grant authority to competent persons to act as guides and revoke the same in his discretion. No pack trains will be allowed in the park unless in charge of a duly registered guide.

7. Owners of patented lands within the park limits are entitled to the full use and enjoyment thereof; such lands, however, shall have

the metes and bounds thereof so marked and defined that they may be readily distinguished from the park lands. Stock may be taken over the park lands to patented lands with the written permission and under the supervision of the superintendent.

8. The herding or grazing of loose stock or cattle of any kind on the Government lands in the park, as well as the driving of such stock or cattle over the same, is strictly forbidden, except in such cases where authority therefor is granted by the superintendent.

9. No drinking saloon or barroom will be permitted upon Government lands in the park.

10. Private notices or advertisements shall not be posted or displayed on the Government lands within the reservation, except such as may be necessary for the convenience and guidance of the public.

11. It is forbidden to carve or write names or otherwise deface any of the posts, signboards, platforms, seats, railings, steps, bowlders, trees, or structures of any kind in the park.

12. Persons who render themselves obnoxious by disorderly conduct or bad behavior, or who may violate any of the foregoing rules, will be summarily removed from the park and will not be allowed to return without permission, in writing, from the Secretary of the Interior or the superintendent of the park.

No lessee or licensee shall retain in his employ any person whose presence in the park shall be deemed and declared by the superintendent to be subversive of the good order and management of the reservation.

13. The superintendent designated by the Secretary is hereby authorized and directed to remove all trespassers from the Government lands in the park and enforce these rules and regulations and all the provisions of the act of Congress aforesaid.

REGULATIONS OF DECEMBER 3, 1910, GOVERNING THE IMPOUNDING AND DISPOSITION OF LOOSE LIVE STOCK FOUND IN THE GLACIER NATIONAL PARK, MONT.

Horses, cattle, or other domestic live stock running at large or being herded or grazed in the Glacier National Park without authority from the Secretary of the Interior, will be taken up and impounded by the superintendent, who will at once give notice thereof to the owner, if known. If the owner is not known, notices of such impounding, giving a description of the animal or animals, with the brands thereon, will be posted in six public places inside the park and in two public places outside the park. Any owner of an animal thus impounded may, at any time before the sale thereof, reclaim the same upon proving ownership and paying the cost of notice and all expenses incident to the taking up and detention of such animal, including the cost of feeding and caring for the same. If any animal thus impounded shall not be reclaimed within 30 days from notice to the owner or from the date of posting notices, it shall be sold at public auction at such time and place as may be fixed by the superintendent after 10 days' notice, to be given by posting notices in six public places in the park and two public places outside the park, and by mailing to the owner, if known, a copy thereof.

All money received from the sale of such animals and remaining after the payment of all expenses incident to the taking up, impounding, and selling thereof, shall be carefully retained by the superintendent in a separate fund for a period of six months, during which time the net proceeds from the sale of any animal may be claimed by and paid to the owner upon the presentation of satisfactory proof of ownership, and if not so claimed within six months from the date of sale such proceeds shall be turned into the Glacier National Park fund.

The superintendent shall keep a record in which shall be set down a description of all animals impounded, giving the brands found on them, the date and locality of the taking up, the date of all notices and manner in which they were given, the date of sale, the name and address of the purchaser, the amount for which each animal was sold and the cost incurred in connection therewith, and the disposition of the proceeds.

The superintendent will, in each instance, make every reasonable effort to ascertain the owner of animals impounded and to give actual notice thereof to such owner.

DESCRIPTION OF THE AREA OF THE PROPOSED GLACIER NATIONAL PARK.

By R. H. Chapman.

The area of the northern Rocky Mountains which lies to the north of the Great Northern Railway and to the south of the Canadian boundary is one of the most beautiful mountain regions in the world. To the east of the mountains the plains region, drained by the Missouri and Saskatchewan River systems, stretches mile upon mile of open grass land, practically treeless.

In sharp contrast to the plains rise the mountains, which, seen from the distance, present a rock wall of great steepness, extending apparently unbroken for miles. This, the eastern face of the range, is actually cut by long, deep, U-shaped canyons, which have been largely formed by the great glaciers which once flowed from the mighty snow-covered peaks and ridges forming the divide between the waters of the Atlantic and Pacific Oceans.

In the canyons are roaring streams, which head in the melting ice and snow, flow into placid lakes and eventually into the arroyos of the plains. Between the canyons the long finger-like ridges rise to considerable heights, the timber-covered foot sloping steeply until a region of brush-covered broken rock is reached, which in turn leads to the base of precipitous cliffs.

The canyons at the head usually terminate in great amphitheaters, rising cliff over cliff in a stairway of tremendous proportions, many steps of which retain an ice mass slowly flowing across it, each fed from a large ice field above, until a region of huge snow banks is reached. The main Rocky Mountain mass is actually made up of two principal ranges, generally parallel, with axis in a northwesterly and southeasterly direction, the easternmost of which is the Lewis Range, which extends but a short distance across the Canadian boundary. The western, or Livingston, range persists much farther northward. At a point about 11 miles south of Canada it becomes the watershed of the Continental Divide, which has previously followed the ridge of the Livingston Range.

These ranges are the remnants of what was once a much wider plateau like region of rock which has been carved and shattered by the forces of erosion, principally those of the glaciers. Upon this great mass are the higher peaks, huge pyramids and blocks, with cliffs and precipices hundreds and sometimes thousands of feet, plunging away to the roaring streams of the valleys or ending in the great crevasse at the head of some glacier.

To the westward the mountains break precipitously, and from the foot of the steep, long, timber-covered ridges reach out toward the valley of the Flathead River.

Between these ridges and extending up the canyons of the higher range are many miles of lakes, joined by rushing streams similar to those on the eastern side.

The whole region is inhabited by wild animals. The streams and lakes abound in fish of many varieties. In the higher barren rock areas the white goat is found in great numbers, while on the slightly lower ridges, where some protection is afforded by stunted timber growth, brush, and slide rock slopes, the bighorn Rocky Mountain sheep has his haunts. In the valleys and on the lower spurs are many deer and moose; in places a few elk are found, and over the whole area, from high glacier and snow field to huckleberry bush of valley and flat, the grizzly roams.

All the game animals use the higher mountain districts for summer range only, as the area is too high and the snowfall too heavy to permit of winter use. It would seem advisable to have a protected area include at least that part of the North Fork Valley which lies to the east of the river in order to supply feed under all circumstances. This would not prevent the use of the west side of the valley for railway purposes, as later suggested. A portion of the plains to the east of the mountains might be added to facilitate this condition.

The experience of the Government in the Jacksons Hole, in relation to the animals of the Yellowstone Park, need hardly be referred to.

The rocks of the whole region are largely of sedimentary origin—limestone, sandstone, and shale—and the conditions are particularly adapted to the study of the structure and history of mountain ranges of these materials, as great folding of the once horizontally bedded rocks is frequently evident and faults of some importance are plain.

At one time prospectors for copper flocked to the region, but no finds were made that warrant the belief that the region is one of any value for this metal.

Indications of oil have been found on both the east and west sides of the range, but none of the explorations have proved productive.

There are numerous passes through the higher ranges. Across these the game trails lead from valley to valley; following the game came the Indians; the hunter and the trapper, looking for easy routes of travel, followed the Indians; then the Government engineers exploring and mapping, and finally the hardier of the tourists and lovers of nature. Most of these passes are closed for many months of each year by snow; some of them are available only after the use of the ax to give footing on the hard ice of glaciers lying close to the divide, but one or two of them are of such a nature as to eventually accommodate wagon roads, by which persons unfitted for the strenuous efforts now required to reach the higher country may have opportunity to view it at close range. None of them that are south of the Canadian boundary will ever be used for a railway route. At some future day the locomotive may cross from Canada to the waters of the Flathead River and wend southward to the towns and farming valleys adjacent to Columbia Falls and Kalispell and form a link with the Great Northern Railway. A route on the west side of the Flathead River is very available for the location of a railroad track. In the valley of the Flathead River are several square miles of land which are admirable for grazing purposes, but over the greater part of the area the soil is so thin as to preclude its extensive use for farming.

The area shown on the map herewith incloses about 1,340 square miles. Within these limits there are 250 lakes, ranging from 10 miles to a few hundred feet in extent; there are more than 60 glaciers between 5 square miles and a few acres in area; there are animals, plants, and rocks in numbers and quantity to satisfy the most ardent student, and views of great variety, beauty, and grandeur to gratify the artist and lover of nature.

The area is in every way suited to the purposes of a national park and game preserve.

The benefits which would come to the persons living close to or within the area would in a very short time compensate them generously for any temporary inconvenience they may experience.

REFERENCES.

Northern Boundary Report. U. S. C. & G. S. and U. S. G. S., pp. 45–54. B. Willis.

Oil of the Northern Rocky Mountains. Engineering and Mining Journal, vol. 72, p. 782. 1901. B. Willis.

Bulletin Geological Society of America, vol. 13, pp. 305–362. B. Willis.

National Geographic Magazine, vol. 13, No. 10, October, 1902. R. H. Chapman.

WIND CAVE NATIONAL PARK.

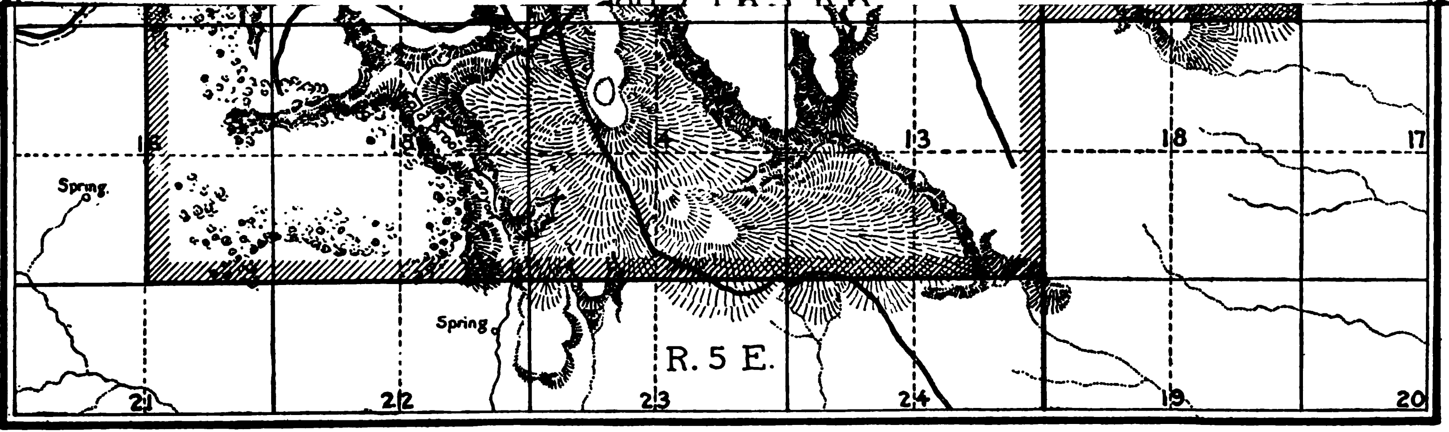
The act of Congress approved January 9, 1903 (32 Stat., 765), reserved a tract of land containing 10,522 acres in the State of South Dakota, 12 miles east of the town of Hot Springs, and about the same distance southeast of Custer, as a public park to be known as the "Wind Cave National Park."

The park was placed under the exclusive control of the Secretary of the Interior, who has authority to prescribe rules and regulations and establish such service as may be deemed necessary in its management and protection, and in his discretion to rent or lease the cave from which the park takes its name, and also parcels of land for the erection of buildings for the accommodation of tourists. The funds arising from such rentals are covered into the Treasury and made available for expenditure in the care, protection, and improvement of the park.

When the park was created there were 10 entries covering lands within the park aggregating 1,519.15 acres. Since that date the Government has secured title to all of the lands within the park except the NE. ¼ NW. ¼ and NW. ¼ NE. ¼, sec. 35, T. 5 S., R. 5 E., Black Hills meridian; Jonathan C. West; patented December 31, 1904,

WIND CAVE NATIONAL PARK

Embracing Sections 34, 35 and 36, T. 5 S., R. 5;
Sections 1, 2, 3, E½ of 4, E½ of 9, and Sec's 10, 11, 12, 13, 14, 15, E½
of 16, T. 6 S., R. 5; Section 31, T. 5 S., R. 6; Sections 6
and 7 T. 6 S. R. 6.



59553°—INT 1910—VOL 1. (To face page 556.)

80 acres, which is now owned by W. A. Rankin, who was formerly superintendent of the park.

With the consent of the Attorney General, Mr. Seth Bullock, marshal for the district of South Dakota, has been continued in general charge of the reservation in an advisory capacity, and the superintendent, R. J. Pilcher, confers with him in regard to the administration thereof. The present superintendent was appointed March 26, 1910, and is the son of the former superintendent, Mr. J. E. Pilcher, who died March 14, 1910. The course pursued has aided in the effective management of the park during the past season.

On April 22, 1910, a revocable permit was granted Mrs. Jennie A. Pilcher, widow of the former superintendent of the park, to furnish meals to tourists at 50 cents each. The service seems to have been satisfactory.

The building constructed in 1893 in which meals are served has been repaired and improved in general appearance. The number of tourists through the park during the year was 3,387, of which number 2,284 were transported by licensed vehicles, and 105 were campers, all of whom registered in books provided for that purpose. The remainder of the number of visitors, 998, were transients and were transported by private vehicles.

During the season nine permits were granted for the transportation of passengers in and through the park at the rate of $50 per vehicle. Five of the permits were for the transportation of passengers by wagons, and four for the use of automobiles.

Harold Peterson was given permission to take pictures in the cave and do a general photographic business in the park, for which privilege a fee of $15 for the remainder of the season, dating from July 31, 1910, was charged.

No applications were received for the driving of cattle or other stock through the park, and no change was made during the year in the regulations promulgated June 10, 1908, for the government of the park.

There was a forest fire in the park from March 23 to March 25, and, although it swept over about a quarter of the area of the park, it did comparatively little damage, as it was confined to the southern portion which contains but a small amount of timber.

A stone wall was completed in front of the superintendent's residence and the lawn was brought up to such a grade as will prevent the soil washing to such an extent as in the past. A concrete walk and steps leading from the residence to the driveway in the front were also constructed.

The roads and bridges are in a fairly good condition, but require more or less attention continuously. A new bridge was built on the road south of the cave to replace the old one, and the approaches were raised.

Following heavy rains a King drag has been used to keep the roads in good condition, and it has been found to be very effective, as well as economical in road making.

In the cave considerable repair work was done during the year to bridges, stairs, and paths, and several new stairways constructed.

An estimate for an appropriation of $2,500 for the protection and improvement of the park has been submitted to Congress.

PLATT NATIONAL PARK.

The park has a total area of 848.22 acres and extends in an irregular form a distance of about 3 miles from northeast to southwest along Sulphur Creek, including a part of Rock Creek, which empties into Sulphur Creek.

Preliminary work has been done looking to the construction of a wagon and automobile road from Lincoln Bridge to the top of Bromide Mountain. This road is intended for tourists' travel only.

A temporary bridge, 84 feet in length, has been constructed across Travertine Creek, at an expense of $4.50. Old material was used in the construction of the bridge. A temporary foot bridge, 37 feet in length, was built over Travertine Creek at Lake Placid.

The continued drought seriously affected the flow of Antelope Springs and completely dried up other springs which it had been the intention to improve. It did not appreciably affect the springs in the Wilson group.

During the year nine permits for the transportation of passengers in and through the park were issued. Six were for automobiles and one for a three-seated hack. A fee of $15 was charged in each of these instances. Two permits for surreys were issued and a fee of $10 in each case was charged.

The Elective Studio was granted authority to take pictures in the park during the first quarter, and a license fee of $3 for that quarter was charged.

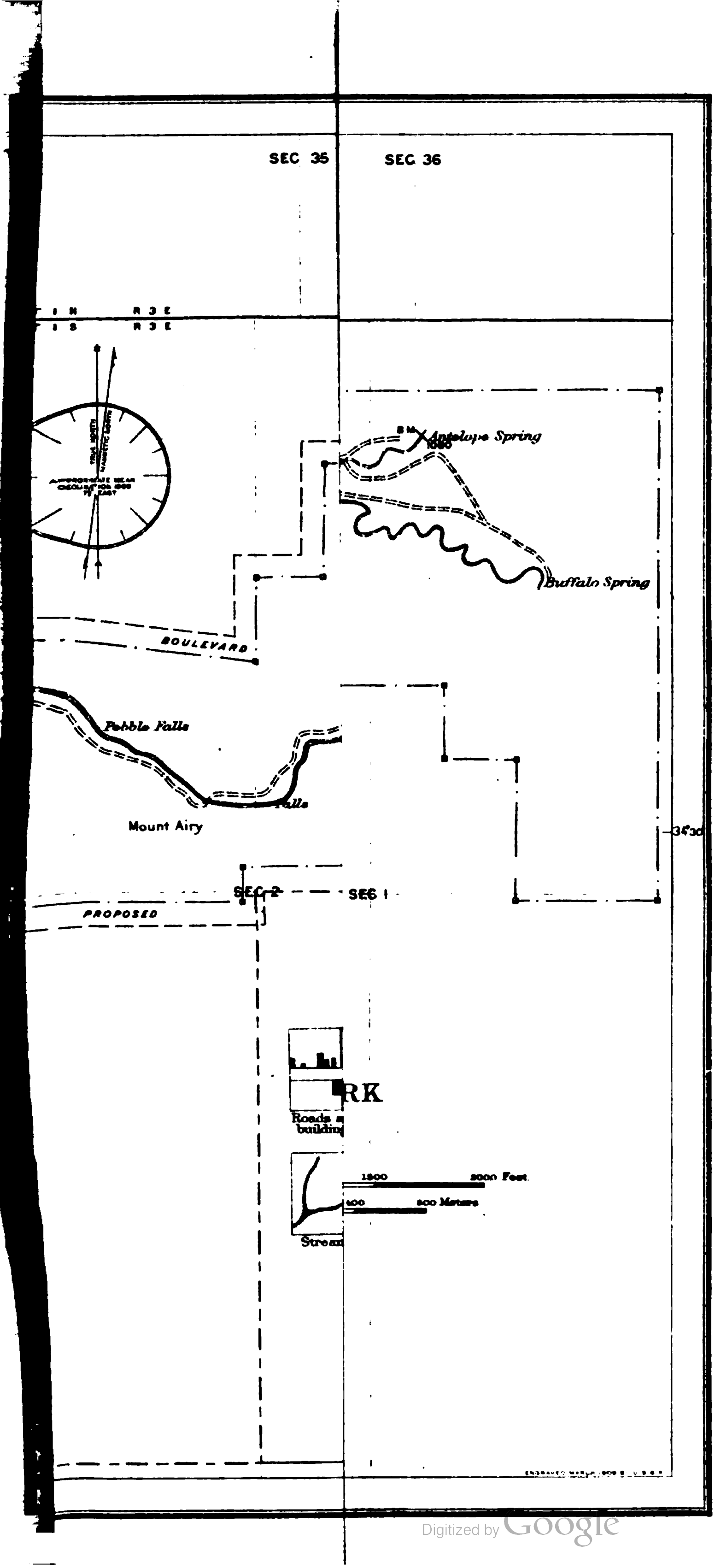
Lewis B. Van Hoesen was given permission to erect a refreshment stand within the park and to sell photographs, etc., for which a fee of $50 was charged, and John P. Sims during the quarter ending June 30, 1910, had a peanut and popcorn roaster within the park, for which a license fee of $6.25 was exacted.

C. J. Barnes has a permit to sell vegetables, the license fee being $5 per annum.

Owing to the continued drought Lon Polk, a large cattle owner, whose pasture adjoins the park on the southeast, was given permission to make an opening in the park fence and construct a U-shaped inclosure, taking in about 3½ acres of park land nearest his pasture and including a portion of Travertine Creek for the purpose of watering his stock. The point at which Mr. Polk was authorized to water his stock is about a half mile below the intake for the city water, which is procured from this creek. He was charged a license fee of $50 per annum.

During the year 2,113 head of cattle and 10 head of horses and mules were driven through the park. During the year 112,956 persons visited the Bromide Springs. It will be understood that this number does not represent that number of different individuals, but those who visited the springs from time to time. It is estimated that at least 25,000 people were actual visitors to the park. Seven hundred and twenty-eight visitors came in wagons and availed themselves of the privilege of the public camping grounds.

Water for domestic use in the office and residences of the superintendent and Ranger Townsley has in the past been secured by means of a windmill and tank. This means proved unsuccessful and recently arrangements were made with the city, which received its supply of water from Travertine Creek, to furnish water for domestic


SEC 35
SEC 36
T 1 N R 3 E
T 1 S R 3 E
TRUE NORTH
MAGNETIC NORTH
APPROXIMATE MEAN DECLINATION 1909
EAST
B.M.
Antelope Spring
1060
Buffalo Spring
BOULEVARD
Pebble Falls
Falls
Mount Airy
34°30'
SEC 2
SEC 1
PROPOSED
RK
Roads a
building
Strea
1800
2000 Feet
400
800 Meters
ENGRAVED ... U.S.G.S.

purposes at the office and residences and at certain places in the park for the use of the general public.

The road leading from Twelfth Street in the town of Sulphur to the park around to what is known as "Bromide Lane" formed the only way by which vehicles could approach the Bromide Springs. During the year the superintendent opened a driveway extending from a point on this road about 400 feet south of the foot of Twelfth Street to the north end of the Bromide Suspension Bridge. This road is about 1,100 feet long. It was cleared of trees and brush and graded, and is now in a good condition. Its establishment has been a great convenience, especially to invalids in getting to and from the springs.

A road about 350 feet long leading from I Street to Travertine Creek was almost impassable as it had been laid in a quagmire of mud with large rocks interspersed here and there. This road has been graded and drained, the surface elevated above the mud and water line, and given a coat of cement gravel 5 or 6 inches in depth. It is now one of the best roads in the vicinity, and is equal to the paved streets in the town of Sulphur.

During the past year the roads throughout the park and the fords of the creek have been repaired as far as it was possible to do so with the limited means at hand. Several of the fords have been cleaned and the grades leading to them cut down which has made the mode of travel in and through the park more easy.

In general, the regulations for the government of the park were well observed during the year. On April 11 the deputy sheriff of Murray County reported to the park officials that he had arrested a citizen of Sulphur on a charge of having committed a robbery within the park just east of Bromide Springs. The park authorities asked that the prisoner be turned over to them on the grounds that the offense was committed in a national park and not in Murray County. The sheriff, after consulting the county attorney, informed the superintendent of the park that the county officials considered they had sufficient jurisdiction to prosecute the accused. On April 26 the case was called in the justice court for preliminary hearing and it was held that the evidence adduced by the State was not sufficient to justify holding the accused, who was thereupon released.

One man was arrested for impersonating a Government officer and three men were arrested for transporting passengers in and through the park in unlicensed vehicles, while one man was expelled from the park on account of intoxication.

The department has submitted an estimate for $5,000 for the care and maintenance of the park including all personal service for the next fiscal year.

SULLYS HILL PARK.

This reservation, set aside by Executive proclamation dated June 2, 1904, under the act approved April 27, 1904 (33 Stat., 319), contains about 780 acres. It is located on the south shore of Devils Lake, N. Dak., having about 2 miles of shore line. Its western boundary is 1 mile east of the Fort Totten Indian School. Inasmuch as no appropriation has been made for the care and protection of this reservation, Mr. Charles M. Ziebach, in charge of the Indian Industrial School, Fort Totten, has been continued as acting superintendent and required to exercise supervison and control until an appropriation is made by Congress.

The tract is well wooded and has an ample supply of water and many rugged hills, among which, on the western boundary, lies what is known as "Sullys Hill." In the southwestern part is a small body of water known as "Sweet Water Lake," west of which the surface is generally level and the soil good.

Approximately 40 persons camped in the park for three days or more during the past summer, and 150 spent one day in sightseeing.

The steamboat landing is at least 2 miles from the park, and the acting superintendent recommends the building of a dock to allow boats to land within the park in order to make it more accessible for visitors. Until this is done, and the roads repaired, and springs walled up, the reservation is not likely to be patronized to any extent. There are no biuldings or improvements of any kind in the park.

CASA GRANDE RUIN.

This reservation is located near Florence, Ariz., about 18 miles northeast of Casa Grande station, on the Southern Pacific Railroad, and contains about 480 acres. It was set aside by Executive order dated June 22, 1902, under the act approved March 2, 1889 (25 Stat., 961).

Casa Grande is an Indian ruin of undetermined antiquity, which was discovered in 1694 by Padre Kino, a Jesuit missionary. This great house is said to be the most important ruin of its type in the Southwest, and as such it has strong claims for archæological study, repair, and permanent preservation. It is built of puddled clay, molded into walls and dried in the sun, and is of perishable character. The main building was originally five or six stories high and covered a space 59 feet by 43 feet 3 inches. The walls have been gradually disintegrating, as a result of the action of the elements. A corrugated-iron roof has heretofore been erected over this building to protect it, so far as practicable, from further decay.

Surrounding Casa Grande proper is a rectangular walled inclosure or "compound" having an area of about 2 acres. In this inclosure, which has been called "Compound A," there have recently been excavated a number of buildings or clusters of rooms. Others known to exist have not yet been excavated. Two other compounds have been discovered and designated, respectively, "Compound B" and "Compound C." The former has been the scene of operations during the past year, but the latter has not yet been excavated and is still in the form of a mound. The three compounds together constitute what is known as the "Casa Grande group of ruins."

As a result of work done by Dr. Fewkes, of the Bureau of American Ethnology, the points of interest to visitors have been materially increased. The ground plan of the ruins was increased by some 57 or 58 rooms, a number of large plazas, and surrounding walls, making the total number of rooms now open on the ground floor over 100.

The custodian, Mr. Frank Pinkley, states that the ruins, as a whole, are in a very good condition except for the slight natural erosion of the elements from which there seems no practical method to protect the greater part of them. The Casa Grande itself was covered by a protecting roof in 1903 and has shown no erosion since that time.

There was about the usual number of visitors during the last year and the greater part of them showed an intense interest concerning the ruins.

The custodian makes the following recommendation:

> I recommend that two pieces of land lying a little farther up the valley be withdrawn from settlement for the protection of the ruins that stand on them. The first and most important one is the S. ½ sec. 8, T. 5 S., R. 9 E., Gila and Salt River base and meridian. I have personally been over the whole of this half section. It is not good farming or grazing land and the ruins on it are important. It should be reserved and placed under my charge. The other group of ruins lie in the NE. ¼ NE. ¼ sec. 13, T. 5 S., R. 8 E., Gila and Salt River base and meridian. These are not so important. The land could be used for farming, though it is not very good. The first group should be reserved, by all means, and the second is important enough to deserve protection if you think it would not make too many reservations for this purpose in this valley.

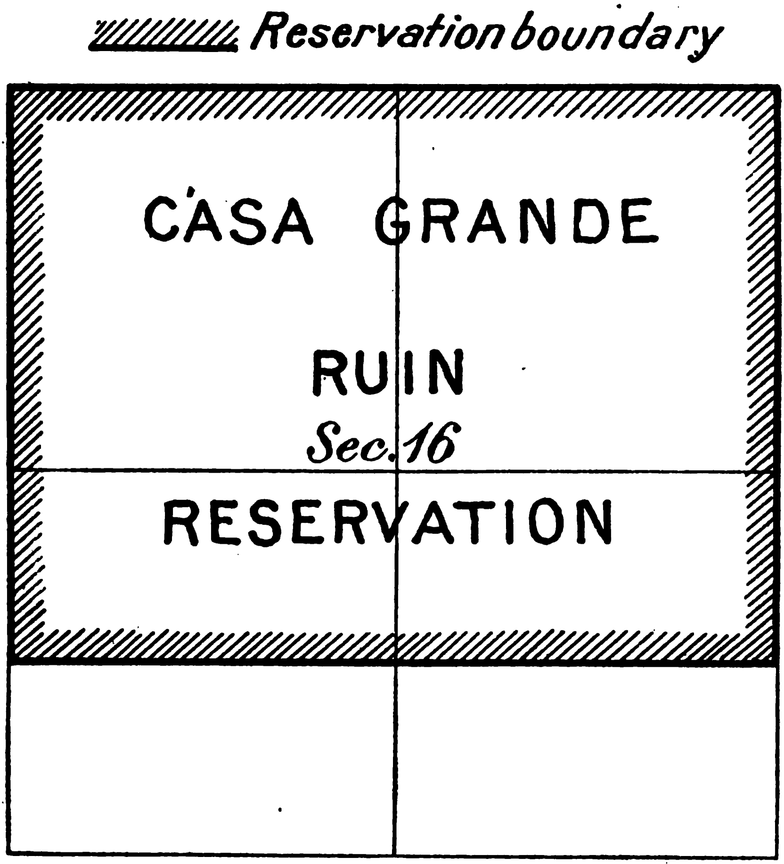


FIG. 1.—Casa Grande Ruin Reservation, Arizona, embracing the NW. ¼, the NE. ¼, the N. ½ of the SW. ¼, and the N. ½ of the SE. ¼ of sec. 16, T. 5 S., R. 8 E., Gila and Salt River meridian; created March 2, 1889.

No money, other than the custodian's regular salary, was expended this year.

NATIONAL MONUMENTS AND PRESERVATION OF AMERICAN ANTIQUITIES.

By an act approved June 8, 1906, entitled "An act for the preservation of American antiquities," the President of the United States is authorized, "in his discretion, to declare by public proclamation historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon the lands owned or controlled by the Government of the United States to be national monuments."

Under such authority, the following monuments, under the supervision of the Interior Department, have been created by the President:

National monuments administered by Interior Department.

Name.	State.	Date.	Area.
			Acres.
Devils Tower	Wyoming	Sept. 24, 1906	1,15
Montezuma Castle	Arizona	Dec. 8, 1906	16
Petrified Forest	do	do	60,77
El Morro	New Mexico	do	16
Chaco Canyon	do	Mar. 11, 1907	20,62
Muir Woods[1]	California	Jan. 9, 1908	29
Pinnacles	do	Jan. 16, 1908	2,08
Lewis and Clark Cavern	Montana	May 11, 1908	16
Tumacacori	Arizona	Sept. 15, 1908	1
Navajo[2]	do	Mar. 20, 1909	[3] 60
Mukuntuweap	Utah	July 31, 1909	15,84
Shoshone Cavern	Wyoming	Sept. 21, 1909	21
Natural Bridges	Utah	Sept. 25, 1909	[4] 2,74
Gran Quivera	New Mexico	Nov. 1, 1909	16
Sitka	Alaska	Mar. 23, 1910	5
Rainbow Bridge	Utah	May 30, 1910	16

[1] Donated to the United States.
[2] Within an Indian reservation.
[3] Based on 15 known ruins, with a reserved area of 40 acres surrounding each ruin. Exterior limits of tract specified in proclamation contain 918,310 acres.
[4] The second proclamation: the first one, dated April 16, 1908, reserved only 120 acres.

The following regulations for the protection of national monuments were promulgated on November 19, 1910:

1. Fires are absolutely prohibited.
2. No firearms are allowed.
3. No fishing permitted.
4. Flowers, ferns, or shrubs must not be picked, nor may any damage be done to the trees.
5. Vehicles and horses may be left only at the places designated for this purpose.
6. Lunches may be eaten only at the spots marked out for such use, and all refuse and litter must be placed in the receptacles provided.
7. Pollution of the water in any manner is prohibited; it must be kept clean enough for drinking purposes.
8. No drinking saloon or barroom will be permitted.
9. Persons rendering themselves obnoxious by disorderly conduct or bad behavior, or who may violate any of the foregoing rules, will be summarily removed.

Names and addresses of officers having supervision of national monuments

F. C. Dezendorf, San Francisco, Cal.:
  Muir Woods National Monument, Cal.
  Pinnacles National Monument, Cal.
Gratz W. Helm, Los Angeles, Cal.:
  Montezuma Castle National Monument, Ariz.
  Petrified Forest National Monument, Ariz.
  Tumacacori National Monument, Ariz.
  Navajo National Monument, Ariz.

George E. Hair, Salt Lake City, Utah:
  Mukuntuweap National Monument, Utah.
  Natural Bridges National Monument, Utah.
  Rainbow Bridge National Monument, Utah.
Leroy O. Moore, Santa Fe, N. Mex.:
  El Morro National Monument, N. Mex.
  Chaco Canyon National Monument, N. Mex.
  Gran Quivera National Monument, N. Mex.
H. C. Cullom, Helena, Mont.: Lewis and Clark Cavern National Monument, Mont.
Adelbert Baker, Cheyenne, Wyo.:
  Devils Tower National Monument, Wyo.
  Shoshone Cavern National Monument, Wyo.
John A. Smith, special agent in charge Field Service, Alaska (219 Federal Building, Seattle, Wash.), Sitka National Monument, Alaska.

The following national monuments are administered by the Department of Agriculture:

National monuments administered by Department of Agriculture.

Name.	State.	Date.	Area.
			Acres.
Cinder Cone	California	May 6, 1907	5,120
Lassen Peak	do	do	1,280
Gila Cliff Dwellings	New Mexico	Nov. 16, 1907	160
Tonto	Arizona	Dec. 19.1907	640
Grand Canyon	do	Jan. 11, 1908	806,400
Jewel Cave	South Dakota	Feb. 7, 1908	1.280
Wheeler	Colorado	Dec. 7, 1908	300
Mount Olympus	Washington	Mar. 2, 1909	[1] 480
Oregon Caves	Oregon	July 12.1909	

[1] Estimated area.

MUIR WOODS NATIONAL MONUMENT.

On December 31, 1907, the Secretary of the Interior, for and on behalf of the United States, accepted from William Kent and his wife, Elizabeth Thatcher Kent, of Chicago, Ill., in accordance with the act of Congress approved June 8, 1906, entitled "An act for the preservation of American antiquities," a deed conveying to the United States the following described land, situate in Marin County, Cal.:

Beginning at a stake, A. 7, driven in the center of the road in Redwood Cañon and located by the following courses and distances from the point of commencement of the tract of land, which was conveyed by the Tamalpais Land and Water Company to William Kent by a deed dated August 29th, 1905, and recorded in the office of the county recorder of Marin County, California, Book 95 of Deeds at page 58, to wit: North eighteen degrees thirty-two minutes, east two hundred thirty-two and sixty-four hundredths feet, north sixty-six degrees thirty minutes, west one hundred sixty-seven and thirty-four hundredths feet, north eighty-six degrees twenty-five minutes, west ninety-eight and sixty-two hundredths feet, north seventy degrees no minutes, west two hundred forty-one and seven hundredths feet, north fifty-seven degrees twenty-nine minutes, west one hundred seventy-eight and three-hundredths feet, north forty-six degrees twenty-two minutes, west two hundred thirty-five and thirty-nine hundredths feet, and north twenty-four degrees twenty-five minutes, west two hundred twenty-five and fifty-six hundredths feet; thence from said stake A. 7, the point of beginning, south fifty-four degrees nineteen minutes, west fourteen hundred eighty-two and seven-tenths feet to Station A. 8, from which Station 4 of the survey of the tract of land conveyed to William Kent as aforesaid bears south fifty-four degrees nineteen minutes, west three hundred ten feet distant; thence from said Station A. 8 north forty-seven degrees thirty minutes, west twenty-six hundred eighty feet; thence due west six hundred fifty and eight-tenths feet; thence north fifty-two degrees thirty minutes, west eleven hundred feet; thence north nineteen degrees forty-five minutes, west ten hundred fifty-eight and four-tenths feet to Station A. 12, from which Station 16 of the survey of the tract of land conveyed to William Kent as aforesaid bears south eighty-three degrees forty-two minutes, west three hundred ten feet distant; thence north eighty-three degrees forty-two minutes east thirty-one hundred nine and two-tenths feet; thence north fifty-five degrees twenty-eight minutes, east fifteen hundred fifty feet to an iron bolt, three-quarters of an inch in diameter and thirty inches long, Station 14; thence south seventeen degrees eighteen minutes, east twenty-eight hundred twenty and nine-tenths feet; thence south four degrees ten minutes, east nine hundred thirty feet to a stake, A. 16, driven in the center of a graded road; and thence south forty-five degrees seventeen minutes, west two hundred ninety-eight and five-tenths feet to said stake A. 7, the place of beginning. Containing an area of two hundred ninety-five acres, a little more or less.

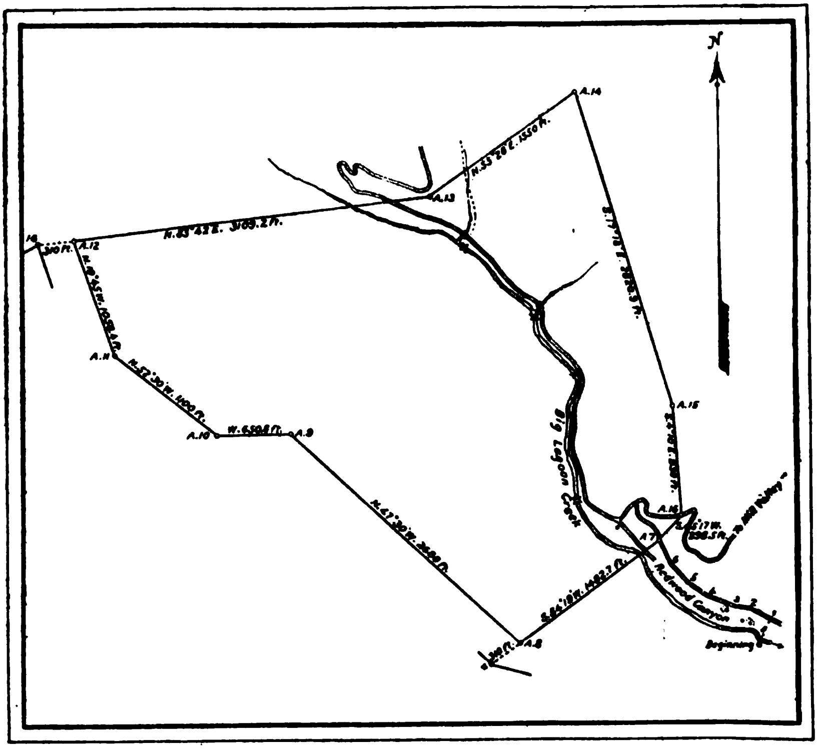


FIG. 2.—Muir Woods National Monument, California, in T. 1 N., R. 6 W., Mount Diablo meridian; created January 9, 1908.

On January 9, 1908, the President, by virtue of the power and authority vested in him by section 2 of said act, declared, proclaimed, and set apart the lands described as a "national monument to be known and recognized as Muir Woods National Monument." The Secretary of the Interior had, prior to the date last mentioned, withdrawn the lands from entry or sale.

On September 10, 1908, the department prescribed regulations as follows for the government and protection of said monument:

The following rules and regulations for the government of the Muir Woods National Monument, in the State of California, set aside under the provisions of the act of Congress approved June 8, 1906, are hereby established and made public, pursuant to the authority conferred by said act:

1. Fires are absolutely prohibited.
2. No firearms allowed.
3. No fishing permitted.
4. Flowers, ferns, or shrubs must not be picked, nor may any damage be done to the trees.
5. Vehicles and horses may be left only at the places designated for this purpose.
6. Lunches may be eaten only at the spots marked out for such use, and all refuse and litter must be placed in the receptacles provided.
7. Pollution of the water in any manner is prohibited. It must be kept clean enough for drinking purposes.
8. No drinking saloon or barroom will be permitted.
9. Persons rendering themselves obnoxious by disorderly conduct or bad behavior, or who may violate any of the foregoing rules, will be summarily removed.

While the sundry civil act, approved May 27, 1908 (35 Stat., 317), was pending before Congress attention was called to the fact that no provision was made for the salaries of custodians or for other protection of national monuments, as recommended in the estimates for these services, and that the department would be embarrassed in its efforts to protect monuments from vandalism and unauthorized exploration and spoliation, because of a lack of funds. The department had recommended an appropriation of $5,000 for these purposes. Three thousand dollars had been appropriated the previous year, but because of deficient wording of the act was not made available. However, on July 11, 1910, Andrew Lind, of California, was appointed custodian of the Muir Woods National Monument, at a salary of $900 per annum, payable from the appropriation "protection of public lands and timber."

These lands consist of one of the most noted redwood groves in the State of California, and were held in private ownership by Mr. Kent. The tract is of great scientific interest, contains many redwood trees, which have grown to a height of 300 feet and have a diameter at the butt of 18 feet or more. It is located in a direct line about 7 miles from San Francisco, Cal., and is in close proximity to a large and growing suburban population.

PETRIFIED FOREST OF ARIZONA.

The Petrified Forest of Arizona lies in the area between the Little Colorado River and the Rio Puerco, 15 miles east of their junction and 6 miles south of Adamana, a station on the Santa Fe Pacific Railroad, from which place it is accessible by horse or vehicle. This area is of great interest because of the abundance of petrified coniferous trees, as well as its scenic features. The trees lie scattered about in great profusion; none, however, stand erect in their original place of growth as do many of the petrified trees in the Yellowstone National Park. The trees probably at one time grew beside an inland sea; after falling they became waterlogged, and during decomposition the cell structure of the wood was entirely replaced by silica derived from sandstone in the surrounding land. Over a greater part of the entire area trees lie scattered in all conceivable positions and in fragments of all sizes. Perhaps the most prominent of all the scenic features of the region is the well-known Natural Bridge, consisting of a great petrified trunk lying across a canyon 45 feet in width and forming a footbridge over which anyone may easily pass.

Prof. Lester F. Ward, of the Geological Survey, has stated that "there is no other petrified forest in which the wood assumes so many varied and interesting forms and colors, and it is these that present the chief attraction for the general public. The state of mineralization in which much of this wood exists almost places them among the gems or precious stones. Not only are chalcedony, opals, and agates found among them, but many approach the condition of jaspar and onyx. The degree of hardness attained by them is such that they are said to make an excellent quality of emery."

Dr. Walter Hough, of the Smithsonian Institution, who visited this monument, states that "in the celebrated Petrified Forest, which is some 18 miles from Holbrook, Ariz., on the picturesque Santa Fe Railroad, there are ruins of several ancient Indian villages. These villages are small, in some cases having merely a few houses, but what gives them a peculiar interest is that they were built of logs of beautiful fossil wood. * * * The prehistoric dwellers of the land selected cylinders of uniform size, which were seemingly determined by the carrying strength of a man. It is probable that prehistoric builders never chose more beautiful stones for the construction of their habitations than the trunks of the trees which flourished ages before man appeared on the earth.

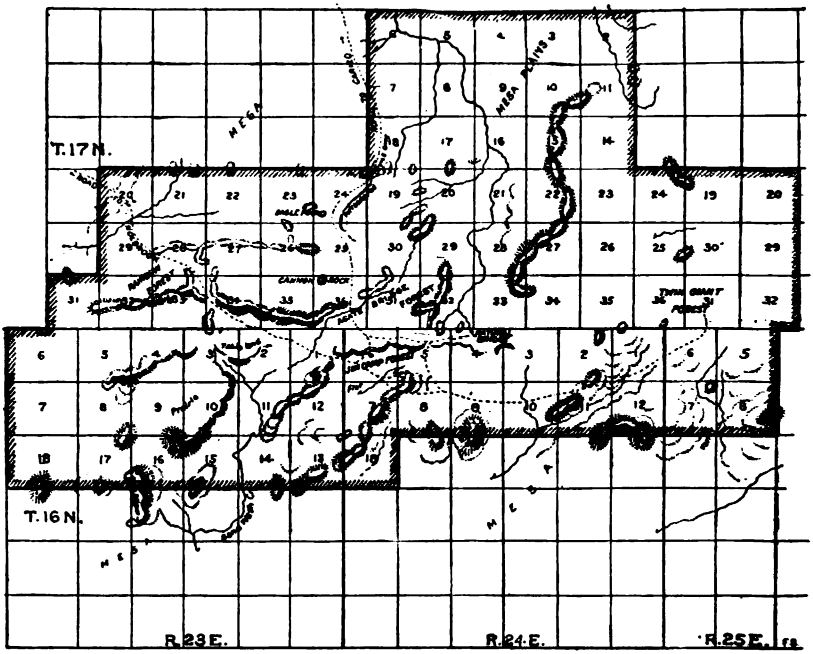


Fig. 3.—Petrified Forest National Monument, Arizona, embracing secs. 1 to 18, inclusive, T. 16 N., R. 23 E.; secs. 20 to 29, inclusive, and 31 to 36, inclusive, T. 17 N., R. 23 E.; secs. 1 to 12, inclusive, and sec. 18, T. 16 N., R. 24 E.; secs. 2 to 11, inclusive, and secs. 14 to 36, inclusive, T. 17 N., R. 24 E.; secs. 5, 6, 7, and 8, T. 16 N., R. 25 E.; secs. 19, 20, 29 to 32, T. 17 N., R. 25 E. Gila and Salt River meridian; created December 8, 1906.

"This wood agate also furnished material for stone hammers, arrowheads, and knives, which are often found in ruins hundreds of miles from the forest."

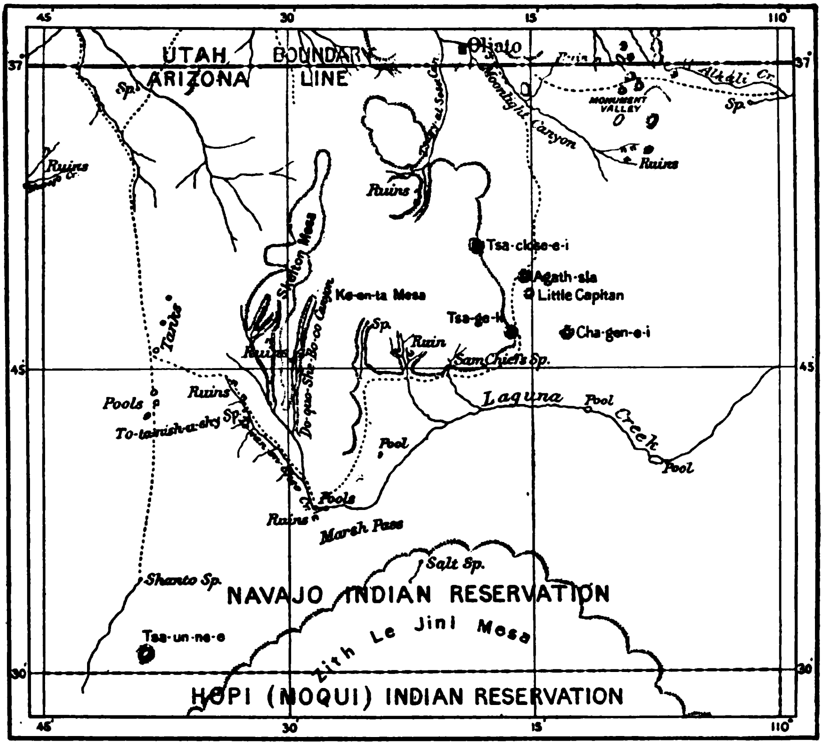


FIG. 4.—Navajo National Monument, Arizona, embracing all cliff-dwelling and pueblo ruins between the parallel of latitude 36° 30′ and 37° north and longitude 110° and 110° 45′ west from Greenwich, with 40 acres of land in square form around each of said ruins; created March 20, 1909.

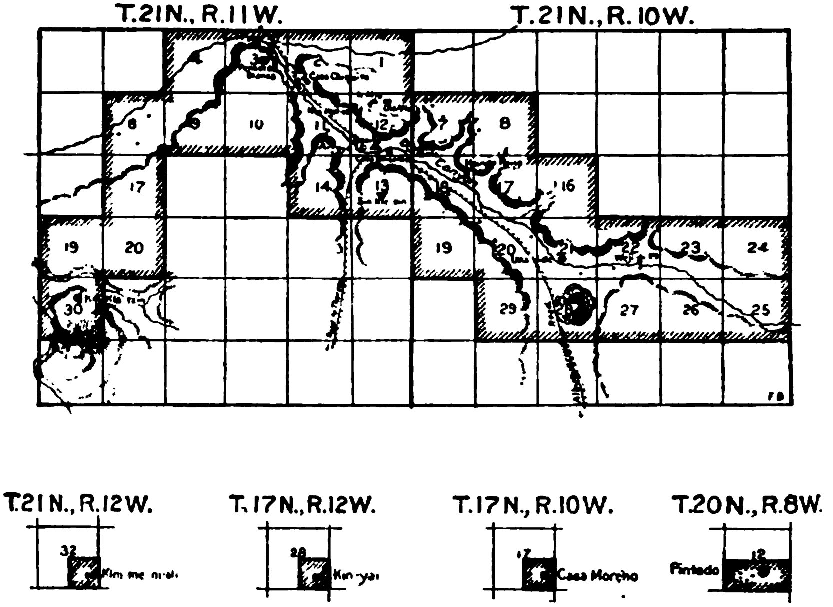


FIG. 5.—Chaco Canyon National Monument, New Mexico, embracing secs. 7 and 8 and 16 to 29, inclusive, T. 21 N., R. 10 W.; secs. 1, 2, 3, and 4, 8 to 14, inclusive, and 17, 19, 20, and 30, T. 21 N., R. 11 W.; S. ½ sec. 12, T. 20 N., R. 8 W.; SE. ¼ sec. 32, T. 21 N., R. 12 W.; SE. ¼ sec. 28, T. 17 N., R. 12 W.; SE. ¼ sec. 17, T. 17 N., R. 10 W., New Mexico principal meridian; created March 11, 1907.

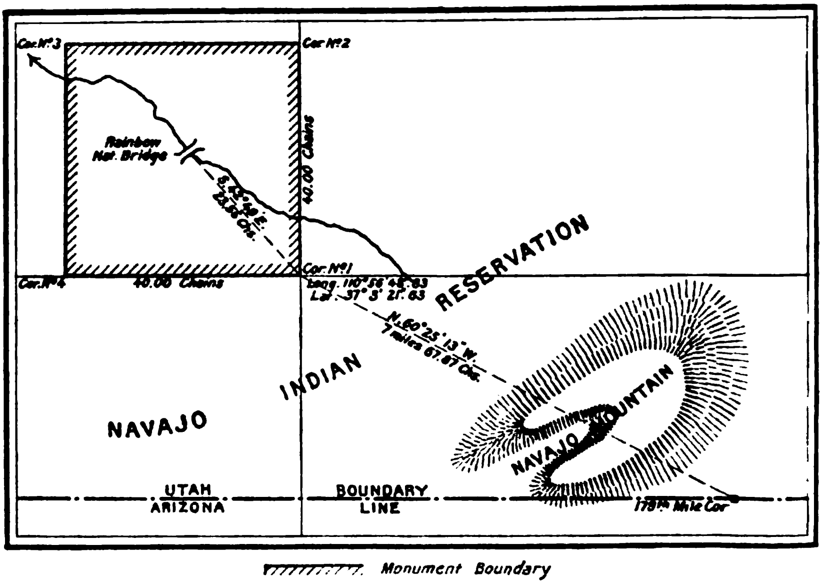
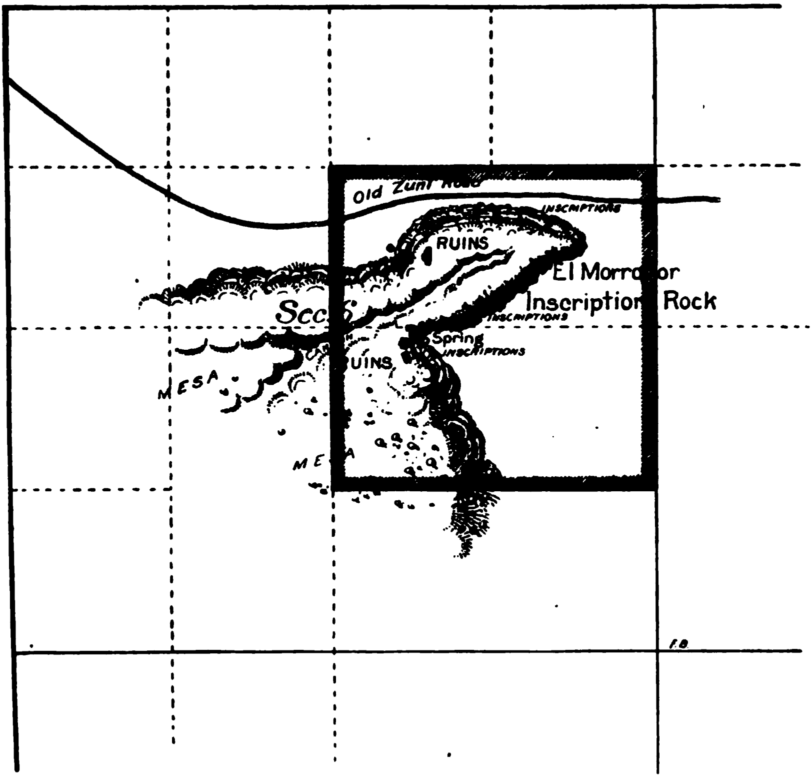


FIG. 6.—Rainbow Bridge National Monument, Utah, embracing 160 acres of land in square form, the southeast corner of which bears from one hundred and seventy-ninth mile corner on the Utah and Arizona boundary N. 60° 25′ 13″ W. 7 miles 67.87 chains distant; created September 25, 1909.



IG. 7.—El Morro National Monument, New Mexico, embracing the S. ½ NE. ¼ and N. ½ SE. ¼ sec. 6, T. 9 N., R. 14 W., New Mexico meridian; created December 8, 1906.

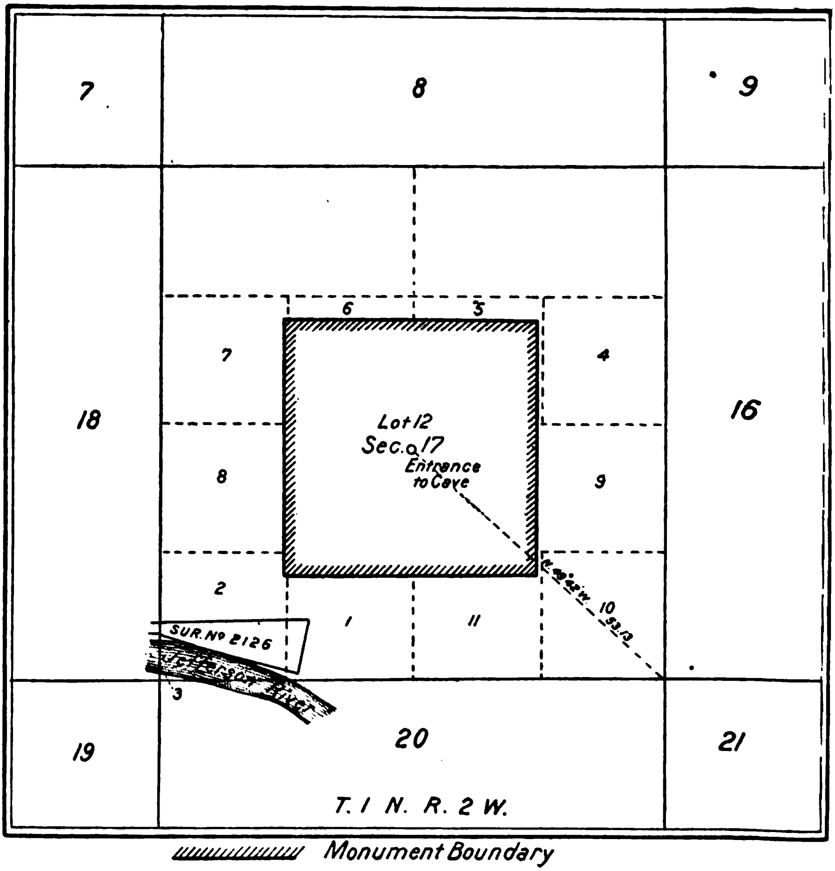


FIG. 8.—Lewis and Clark Cavern National Monument, Montana, embracing lot 12, sec. 17, T. 1 N., R. 2 W., Montana principal meridian; created May 11 1908.

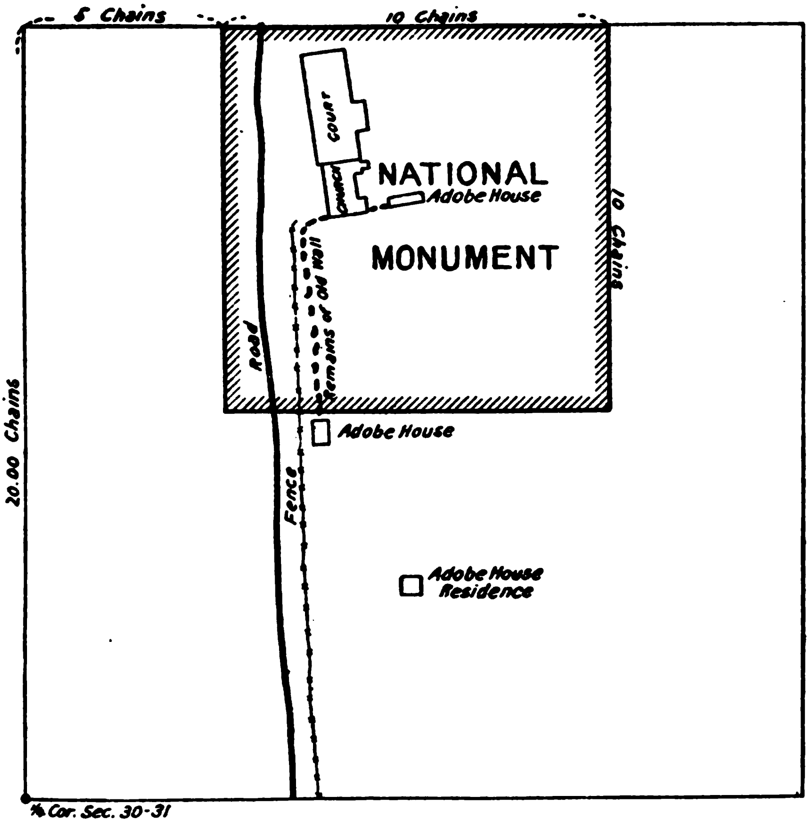


FIG. 9.—Tumacacori National Monument, Arizona, embracing the E. ½ NW. ¼ SW. ¼ SE. ¼ and the W. ½ NE. ¼ SW. ¼ SE. ¼, sec 30, T. 21 S., R. 13 E., Gila and Salt River meridian; created September 15, 1908.

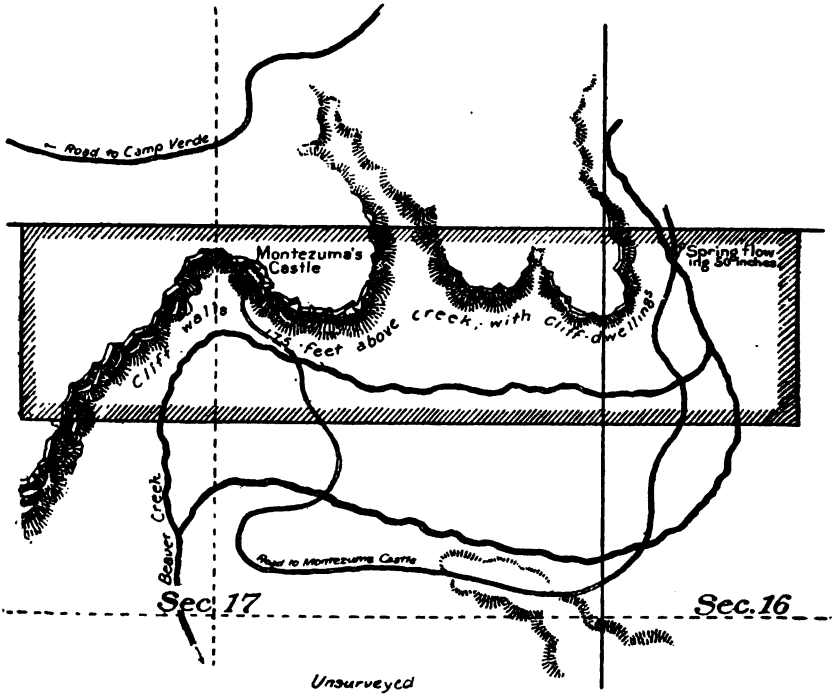
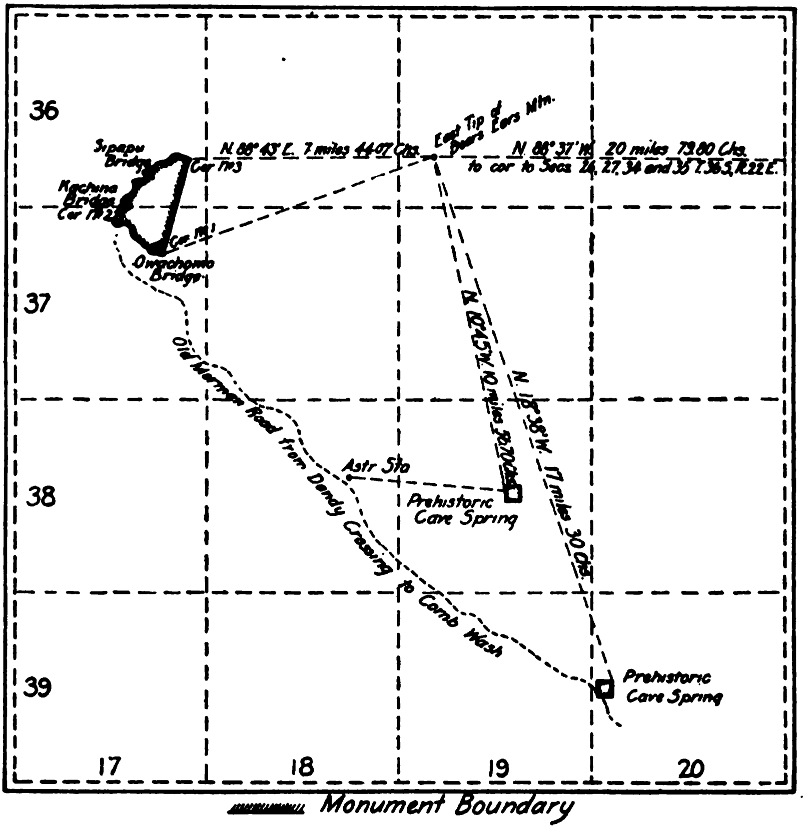


FIG. 10.—Montezuma Castle National Monument, Arizona, embracing the NW. ¼ NW. ¼ sec. 16, the N. ½ NE. ¼ and NE. ¼ NW. ¼ sec. 17, T. 14 N., R. 5 E., Gila and Salt River meridian; created December 8, 1906.


36
37
38
39
17
18
19
20
Sipapu Bridge
Cor Tn3
Kachina Bridge
Cor Tn2
Cor Tn1
Owachomo Bridge
N. 88° 43' E. 7 miles 44.07 Chs.
East Tip of Bears Ears Mtn.
N. 88° 37' W. 20 miles 73.80 Chs.
to cor to Secs 26, 27, 34 and 35 T. 36 S, R. 22 E.
N. 10° 45' W. 10 miles 38.70 Chs.
N. 18° 38' W. 17 miles 30 Chs.
Old Mormon Road from Dandy Crossing to Comb Wash
Astr Sta
Prehistoric Cave Spring
Prehistoric Cave Spring
Monument Boundary

G. 11.—Natural Bridges National Monument, Utah, embracing a subtriangular tract in unsurveyed Tps. 36 and 37 S., R. 17 E., and two smaller tracts, one each in T. 38 S., R. 19 E., and T. 39 S., R. 20 E., Salt Lake meridian; created September 25, 1909.

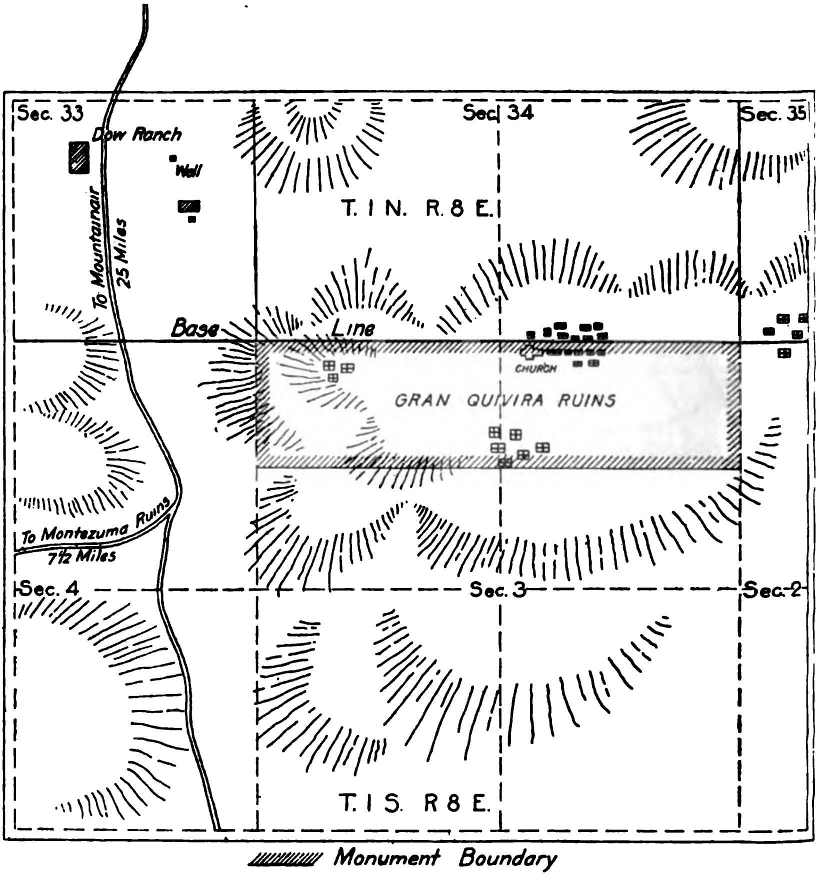


FIG. 12.—Gran Quivira National Monument, New Mexico, embracing unsurveyed N. ½ N. ½ sec. 3, T. 1 S., R. 8 E., New Mexico principal meridian; created November 1, 1909.

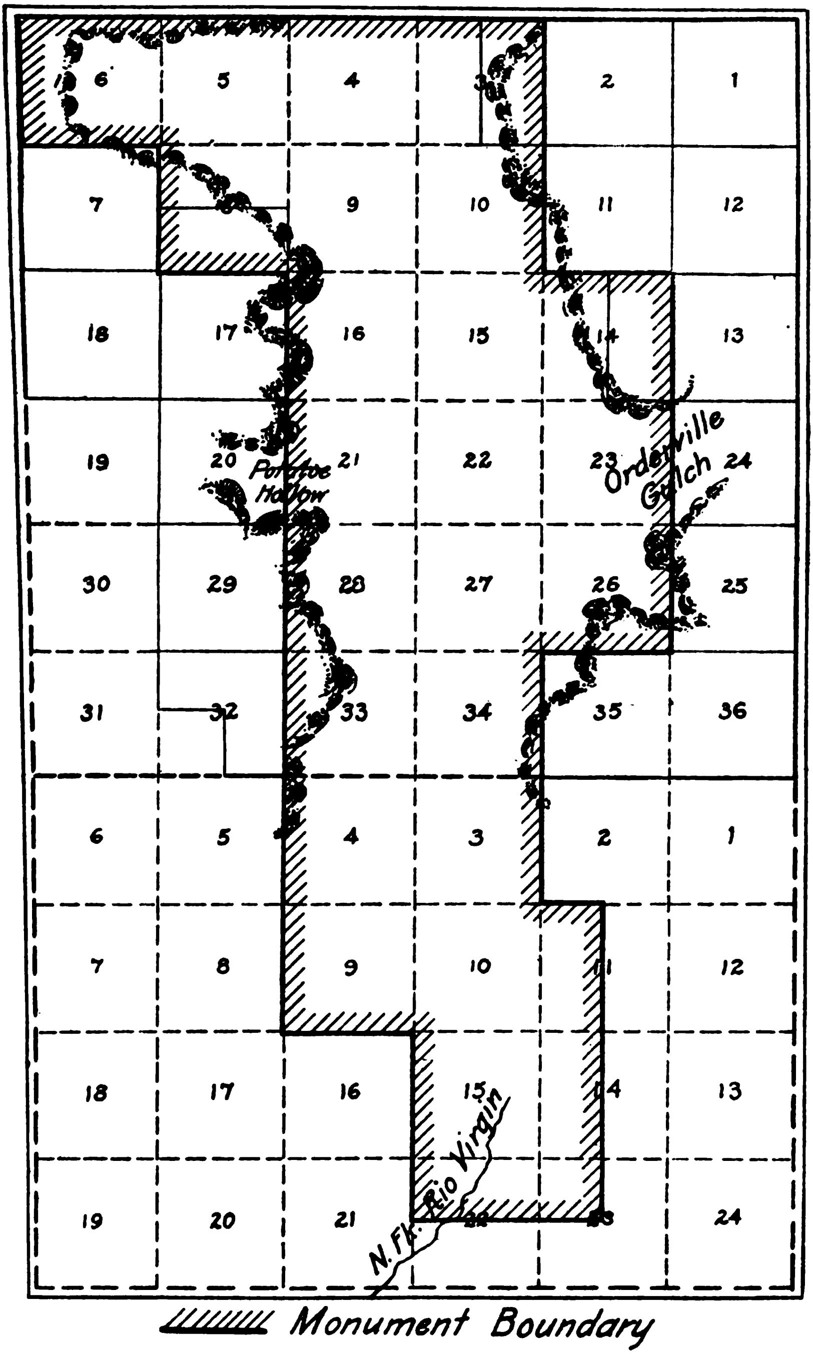


FIG. 13.—Mukuntuweap National Monument, Utah, embracing secs. 3, 4, 5, 6, 8, 9, 10, 14, 15, 16, 21, 22, 23, 26, 27, 28, 33, and 34, T. 40 S., R. 10 W., and all of the Mukuntuweap Canyon in T. 41 S., R. 10 W., Salt Lake meridian; created July 31, 1909.

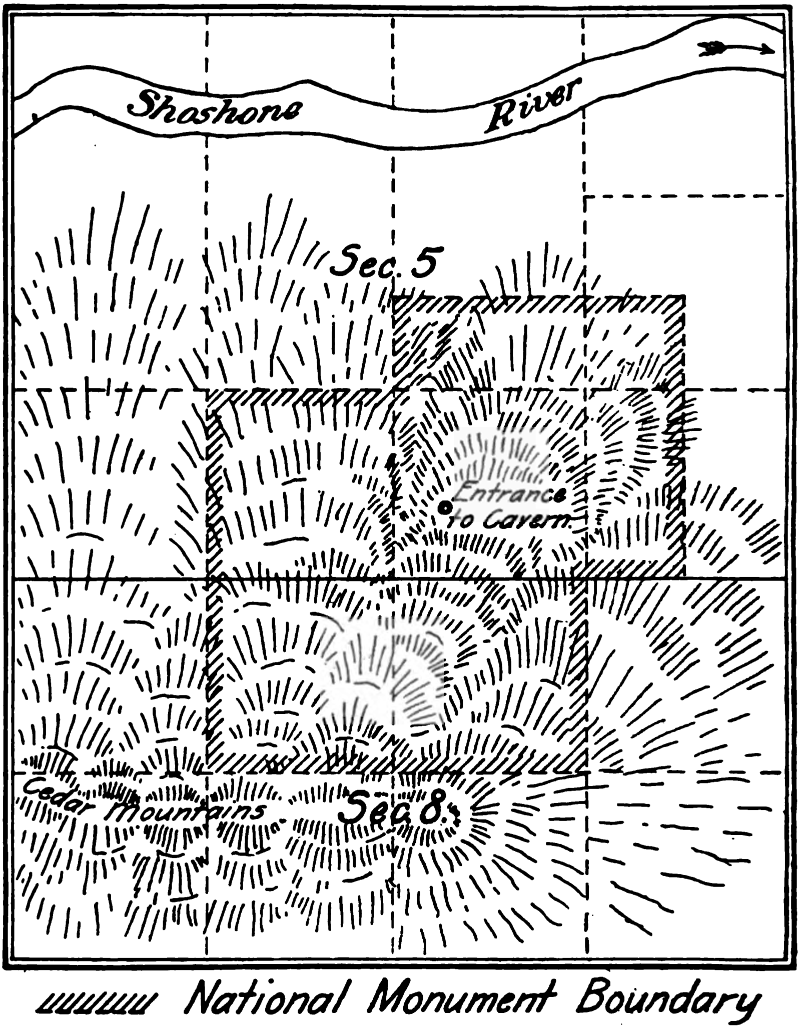


FIG. 14.—Shoshone Cavern National Monument, Wyoming, embracing the SW. ¼ SE. ¼, W. ½ SE. ¼ SE. ¼, SW. ¼ NE. ¼ SE. ¼, S ½ NW. ¼ SE. ¼; and SE. ¼ SW. ¼, sec. 5; the NW. ¼ NE. ¼ and NE. ¼ NW. ¼ sec. 8, T. 52 N., R. 102 W., sixth principal meridian; created September 21, 1909.

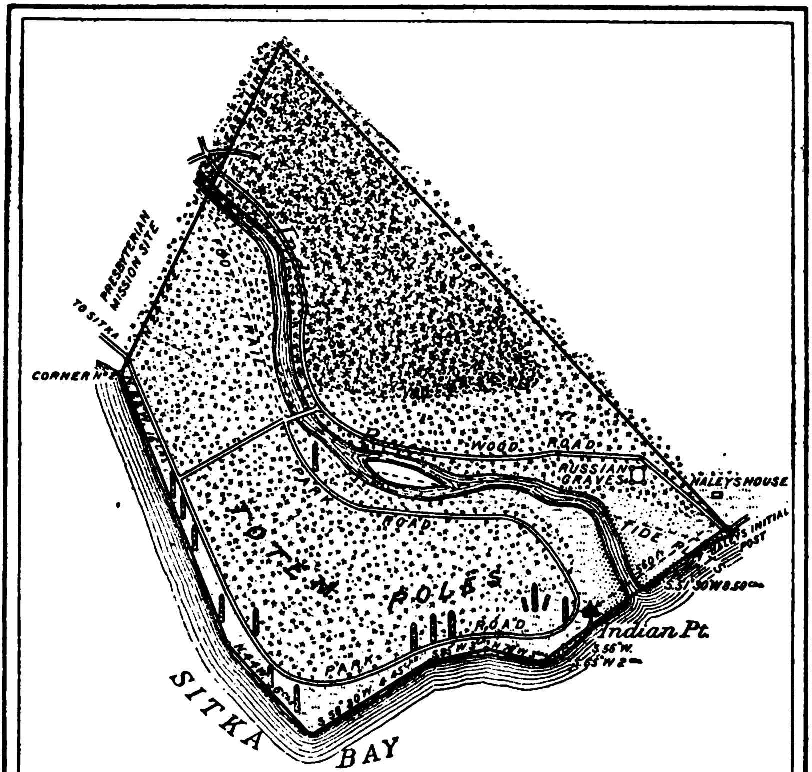


FIG. 15.—Sitka National Monument, Alaska, embracing a tract of land which includes the mouth of Indian River and adjacent territory near Sitka; created March 23, 1910.

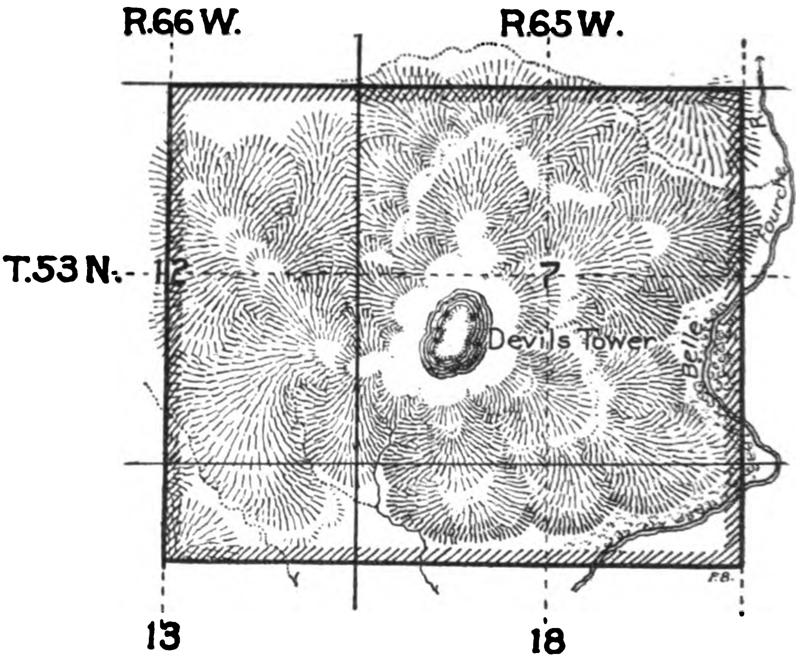


FIG. 16.—Devils Tower National Monument, Wyoming, embracing sec. 7 and the N. ½ NE. ¼, the NE. ¼ NW. ¼, and lot No. 1, sec. 18, T. 53 N., R. 65 W.; the E. ½ sec. 12 and the N. ½ NE. ¼ sec. 13, T. 53 N., R. 66 W., sixth principal meridian; created September 24, 1906.

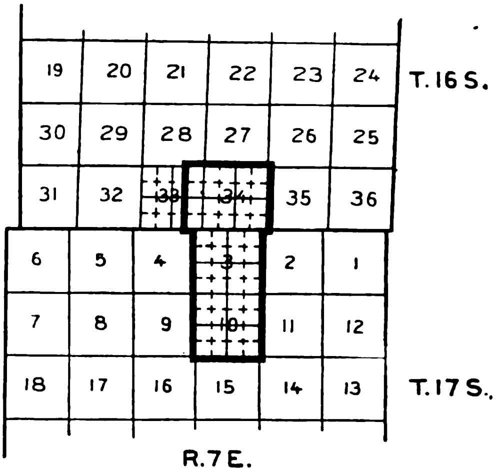


FIG. 17.—Pinnacles National Monument, California; created January 16, 1908.

REPORT OF THE SUPERINTENDENT OF THE HOT SPRINGS RESERVATION.

REPORT ON THE HOT SPRINGS RESERVATION, HOT SPRINGS ARK.

OFFICE OF THE SUPERINTENDENT,
Hot Springs, Ark., September 13, 1910.

SIR: I have the honor to respectfully submit the following report of the operations of this office for the fiscal year ended June 30, 1910:

GENERAL STATEMENT.

The year just closed has been the greatest ever known at this resort. The number of visitors has exceeded those of any other year by perhaps 25 per cent. The train arrivals during the four largest months were as follows:

January	10,784
February	16,343
March	14,878
April	11,216

This wonderful increase in patronage may be ascribed to various reasons, one of which was the cooperation of a majority of the citizens, and particularly the business men's organizations, with this office in an attempt to revise the system of entertainment and protection of the many thousands of visitors who come here annually.

Another cause which contributed to make this the banner year was the way in which the attention of the public was called to the fact that these waters have wonderful curative properties, that the Government controlled them, and that the hot springs are an important government institution.

When I assumed charge here one year ago one of my first impressions was that the citizens of Hot Springs too little appreciated the importance of seeing that the seeker after health was surrounded by conditions which would bring the best results. Heretofore, it occurred to me, too much energy had been expended in seeking patronage and too little in seeing the patron satisfied and benefited.

Ever since Hot Springs became famous as a health resort there has existed a most glaring evil, which has doubtless retarded in many ways the greater use of these waters. This evil was what was known as doctor and hotel drumming, and had grown each year until many people all over the United States, who really needed the benefit of the waters, remained away rather than become the victims of either the unscrupulous hotel man or physician. To better show the conditions in regard to the drumming evil, I reproduce the following, taken from the superintendent's report of 1905:

> The present rules and regulations were prepared with the primary object of facilitating the operation of the bathing interests to the mutual advantage of the Government, lessees, and patrons of this resort, in order that discipline and protection would be maintained, with special reference to the suppression of the obnoxious, nefarious, and demoralizing drumming evil which has flourished here for years to the injury of the good name of this health resort—a monster

which insidiously demoralizes and corrupts the integrity, ethics, and morale of the community, making traffic of the sick who come here for relief—a commercial feature of barter and gain, which, if not suppressed, will slowly but surely undermine all authority and respect for law, defy official power, and bring reproach, criticism, and retaliation.

This legitimate avocation as pursued throughout the commercial world as an honorable calling, requiring integrity, character, and mental equipment, is reversed here when the commodity becomes a traffic in sick, diseased, and debilitated people, and misrepresentation, deception, fraud, and extortion become the elements of the successful drummer, who, through apparent interest in the welfare of the visitor, secures his confidence and influences him to some unscrupulous and incompetent doctor, who extorts a fee in excess of regular charges by reputable physicians, which is divided with the drummer.

This reprehensible practice has become condemned by the better element of society here, and numerous and various ways and means for its suppression have been resorted to. Ordinances against it have been enacted by the city council, all to no avail when subjected to the broad interpretation of the state constitution. During the year 1903 a vigorous crusade was instituted against this evil by local societies and ethical doctors, and a new medical law, known as the "Gantt law," regulating the practice of medicine, was enacted by the State, having for one of its objects the suppression of this evil, and its enforcement has materially assisted in a reduction of the practice.

Responding to this sentiment of protection to the people, the department adopted rules and regulations, among which was a rule prohibiting patients of drumming doctors from bathing in the various bathhouses having water franchise from the Government, and appointed a medical board to pass upon the qualifications and character of physicians who desired to prescribe the baths, establishing a registered list of those found competent under the rules, which list was filed in this office for the guidance of the superintendent in the enforcement of the rules. Under this registration 77 physicians were certified to the superintendent as qualified and 39 rejected. Of the 39 rejected 14 were subsequently registered, together with 3 others who were out of the city at the time the applications were filed. This made a total of 94 registered by the board.

Viewing this evil from all angles, it was not long before I realized that it would be a stupendous task to destroy this system, which had grown and thrived for nearly forty years and was so far-reaching that it not only had its ramifications in every branch and line of commerce and trade, but was by many citizens viewed as an inherent and vested right peculiar to the resort.

It was not at all uncommon for drummers to go as far north as St. Louis, Mo., and many made regular daily trips as far east as Memphis, Tenn. I should say that on an average 30 drummers either left or returned to the city daily.

Drumming for hotels was in most cases but a subterfuge. The real object was to obtain the confidence of the unwary or sick visitor, and after getting him to a hotel, which was usually subsidized by some physician, to land him with all possible alacrity in the hands of the drumming physician, who usually divided his fee with the drummer. It can readily be imagined how the poor, sometimes deluded and often imposed on patient, was served. Commercialism had routed professional ethics and the conditions were abominable in the extreme. The baneful effects of this practice were gradually but surely destroying the future of Hot Springs as a resort. In order to destroy the practice, the ethical physicians had, through the several organizations they have had from time to time, contributed many thousands of dollars, the railroads had spent large sums, the State and city had legislated, in fact, everything had been done to stop the practice and eliminate it completely, all to no avail.

After a careful review of conditions and a thorough study of the surroundings, I came to the conclusion that it was not only possible to stop the practice completely and effectually, but to destroy forever the chance for its reinstatement. To this end one of the first things I recommended was authority to employ two officers to board every passenger train before it entered the city and warn the public what to avoid. This authority was granted, and these officials are instructed to give all information necessary and to render every needed service to the public. The announcement made by them is as follows:

> The public is notified that the waters of the hot springs are owned and controlled by the United States Government, and it is a violation of the law for any person to drum or solicit patronage on the trains in this State for hotels, boarding houses, bathhouses, or doctors. No one will be permitted to bathe who stops at a hotel or boarding house which drums, or employs inside men to drum or solicit for doctors.
>
> The baths are open to everyone without a doctor; you are requested not to take the advice of any hotel man or inside man as to whether you should employ a doctor; but should you employ one be sure that he is one registered by the Government and permitted to prescribe the baths. If you treat with a nonregistered doctor or one not authorized to prescribe the baths, the baths will be denied to you; and if you bathe or attempt to bathe while treating with a nonregistered doctor, you lay yourself liable to a severe penalty. A list of registered physicians can be found in every bathhouse, posted on "bathhouse row," and at the superintendent's office. All information regarding doctors and the baths will be cheerfully given at the superintendent's office, the first office on "bathhouse row."

The result of this system of train inspection and announcement, which was put into effect on October 15, 1909, was immediate and effective, and the drummers, to the number of from 30 to 50, immediately ceased riding on the trains and harassing the incoming visitors.

It soon became known that government officials had replaced the train drummer, and many people from all sections of the country began to come who had heretofore remained away because of this nuisance. That the public at large appreciates the improved conditions is best evidenced by the fact that rarely a day passes that many persons not only compliment but thank the Government for the protection it is affording.

I recommend the continuance of this train inspection, as I believe it is the only effective means by which the public can be thoroughly protected.

The adoption of a daily bathhouse register has also proved a great help in bettering conditions. This register is kept by each bath house and shows the tickets sold, the name of the bather, his home residence, his local residence, the name of his physician, and the name of the bath attendant who waits upon him. A copy of this report is furnished this office daily by each bathhouse, and through this means we were able to obtain evidence of drumming, which resulted in the elimination from the list of several physicians. The report is also a great accommodation to visitors seeking the location of friends or relatives.

Another innovation was the uniform bath direction blank. This uniform blank, which is used by all the physicians, must be signed by the patient below the directions for the bath in the presence of the physician and the manager of the bathhouse. This prevents a nonregistered physician from bathing a patient under the prescription blank furnished to some patient of a regular registered physician, and has been an important factor in the elimination of doctor drumming.

I had been here but a short time before I was convinced that the power which comes from the radio activity of the water was too little appreciated and that too little care was taken in the administration of the baths. To remedy defects that existed, an order was issued that a thermometer be supplied for each bath tub, so that the bather could see that the temperature was given as prescribed by his physician; and a clock was supplied for each bathroom, so that the exact duration of the bath could be noted by the bather as well as the attendant. The result has been exceedingly gratifying, and bathhouse managers, attendants, and physicians generally concede that these waters are now more scientifically administered than ever before.

After one year's observation of many cures, some of which are almost marvelous, I am convinced that the Government has no asset nearly so valuable to mankind as these hot springs.

The new regulations governing all bathhouses receiving water from the hot springs on the reservation, promulgated December 29, 1909, are appended to this report.

IMPROVEMENTS.

During the year much work has been done on the roads on the mountains, which are in excellent condition. The system of retaining walls on East Mountain has been extended and during the year there were built 2,179 linear feet, averaging 3½ feet in height and 18 inches thick. This improvement has been done with the regular force and at very small expenditure. East Mountain, which is practically the city park, was unlighted, which prevented its use after dark. To enhance its usefulness and attractiveness, one hundred 60-watt Tungsten electric lights were distributed on the reservation front and in regular series of lines up the mountain roads to near the summit. The cost of operating the 100 lights does not exceed that of the 8 arc lights and 4 gaslights formerly used.

To further add to the attractiveness of East Mountain all the slopes having retaining walls were graded and covered with Bermuda grass, which not only acts as a good preserver and retainer, but also replaces the unsightly red clay gashes on the mountain side with a well-rounded, bright grass sward. Several hundred flowering trees and shrubs were planted on both sides of the roads leading to the summit of the mountain, and many flower beds were laid out.

There are only two cold springs on East Mountain, situated in a pavilion on Fountain street, just west of the superintendent's official residence, and one of these, the larger, was uncovered. A well-made, galvanized-iron casing and top, with faucets on the four sides, was placed over this spring, adding greatly to its appearance and at the same time preventing any pollution of the water. The smaller spring, which yields very fine water, formerly had its outlet across the street. The outlet is now on the reservation, immediately in front of the pavilion.

No provision has been made for drinking water on East Mountain, where there are about 10 miles of very beautiful mountain drives, used extensively by pedestrians and vehicles. On or near the summit there should be erected a pavilion, in which a drinking fountain could be placed, and provision should also be made at or near this pavilion for a watering trough. I have heretofore recommended using for this purpose the deep well near the electric observation tower that has never been used. This pavilion should be built of rubblestones or cement and steel, and the fountain should be supplied from a steel tank. This subject is now pending, and I renew my former recommendations pertaining thereto.

Block 114, located on Prospect avenue, which is owned by the Government, was the only one for a great distance in the heart of the city which was without curb and sidewalk. A cement curb and sidewalk have been built according to the city's specifications, and some material left over from block 114 has been used for sidewalk and curb in front of lot 5, block 102.

WHITTINGTON PARK.

Whittington Park, which is east of the reservation on Whittington avenue and contains 11 acres, is the only park in that part of the city and is much used. Poles were erected and fifteen 60-watt tungsten electric lights were installed. This improvement adds materially to the attractiveness and usefulness of the park. During the year much shrubbery and many flowers were planted, the walks straightened and improved, six new concrete bridges are now being constructed, and all the pavilions are being repaired and painted. A new brick house for the keeper of the park, to be located in the park, has been ordered and contract let for its construction. Authority has been granted also to erect a public-comfort station in this park, and to replace the old worn-out wooden bridges with reenforced concrete ones. When these improvements are completed this park will be in first-class condition.

UNSOLD LOTS.

The Government still owns 169 lots, distributed all over the city. These lots were ordered sold in 1904, but owing to the disastrous fire in that year the sale was deferred. During this summer another appraisement was made by the register and receiver of the land office at Little Rock and myself, and I assume a sale is contemplated. I recommend that these lots be sold this fall or winter. After the splendid year just past, with prospects of next year being even still better, it is but natural that everyone is filled with great hopes and anticipations, and I am firmly impressed that now is the time to sell all remaining lots.

CREEK ARCH.

The arch which extends from Whittington avenue on the north to Malvern on the south is in first-class condition and no repairs are needed at present. This arch was constructed in 1884. It is 17 feet wide, 10 feet high at the crown, and has a total span of 3,500 linear feet.

BATHHOUSE INSPECTION.

For the past six months I have made semimonthly inspection of all the bathhouses and feel that these inspections have resulted in very much improved conditions. The sanitation and hygienic surroundings are better, and a greater degree of proficiency in the administration of the baths has resulted. Formerly the bathhouse attendants administered medicines in the bathhouses during bathing hours, and as a result there were complaints of neglect from patrons. The rules were changed so that now no attendant can rub or administer any medicine while on duty as attendant or during bathing hours. A room has been set aside in each bathhouse for that purpose and a special attendant employed for such work.

GOVERNMENT FREE BATHHOUSE.[a]

When I took charge, one year ago, the government free bathhouse was in very bad repair. The house is thoroughly inadequate, is much too small, and should be replaced with a modern, up-to-date model bathhouse. However, as that was a matter for future action, I immediately began the improvement of what was here. The building has been painted on the outside, the roof repaired and painted, and the entire interior thoroughly overhauled; the sanitation was improved by changing the floor construction; the walls and ceiling were given three coats of the best enamel paint; the furniture was painted with enamel paint; new lockers were installed, with locks and keys; and the 36 pools and tubs were enameled. This work was done without seriously discommoding the hundreds of patrons. When completed the house presented a vastly improved appearance. By adding two attendants to the regular force we have given good service and been able to maintain the improvements. During the heaviest months some days more than 900 persons were bathed in this house, and during the year over 200,000 baths were given, which is not so many as last year. This I ascribe to a rigid enforcement of the rule as to qualifications for these baths.

The act of Congress approved December 16, 1878, provides: "That the superintendent shall provide and maintain a sufficient number of free baths for the use of the indigent, and the expense thereof shall be defrayed out of the rentals hereinbefore provided for." No sworn statement is demanded from the applicant for baths as to his financial condition, and there is no doubt but what a very great proportion of the bathers, possibly one-fifth, are amply able to pay for baths. All that is required now is a statement that the applicant is indigent and unable to pay. The impression that better results are obtained by bathing in the pools is the reason why many who are able to buy baths take advantage of the free bath. I have endeavored to reduce the number of such persons to the minimum, and believe this has in a great measure been accomplished. I feel that inasmuch as these free baths were intended for the indigent exclusively some provision should be made whereby the management, in all cases of doubt, could require a sworn statement or some positive proof as to the applicant's financial condition. There were given this year 25,000 less baths than last year, and still there were many times when the house was overcrowded. The cooling rooms are far too small, and when crowded the result is very unsatisfactory. The house is supplied with water by gravity as well as by pumping, and while the demands have been met at all times I apprehend that this will not always be the case unless some provision is made to keep out those able to buy baths. The following table shows the result of the operation of the free bath house for the year ending June 30, 1910:

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[a] For regulations governing admissions to this bathhouse and form of application for baths, see Appendix.

Baths given by free bath house.

Applications for free baths	6,842
Tickets refused	172
Applications issued	6,072
Tickets reissued on original application	4,680
White males	122,909
White females	20,443
Colored males	40,316
Colored females	16,380
Persons bathed	200,048
Soldiers and sailors bathed	656
Average number of persons bathed daily	565

EMPLOYEES.

There are 22 employees besides the superintendent required to properly maintain and care for the reservation interests. Their names, duties, and compensations are shown in the following table:

Personnel of the reservation force, with the compensation and duties.

	Salary per year.
Harry H. Myers, superintendent	$3,600
B. Frank Bayley, clerk and assistant to the superintendent	1,680
James Daniels, laborer at superintendent's office (Duties are to act as messenger to the superintendent and have charge of the furnace and lights at the office and residence buildings, and of the barns.)	600
J. H. Demby, manager of free bathhouse (Duties are to have general charge of the free bathhouse, receive applications for free baths, collect tickets, and see that the rules and regulations are carried out, together with such instructions as he may from time to time receive from the superintendent.)	1,080
C. C. Cooper, head male attendant at free bathhouse (Duties are to have charge of bath tubs, pools, dressing rooms, etc., and see that the same are kept in a cleanly condition; also to have charge of heating plant, electric motor, and pump which furnishes water supply, and to act as manager during the absence of the latter.)	840
Martin Winn, male attendant at free bathhouse (Duties are to have charge of the white men's bathing department and to keep the tubs, pools, and dressing rooms in a cleanly and sanitary condition.)	540
Samuel Clark, male attendant at free bathhouse (Duties are to have charge of the colored men's bathing department and to keep the tubs, pools, and dressing rooms in a cleanly and sanitary condition.)	540
Charles F. Hodge, male attendant at free bathhouse (Duties same as other attendants.)	540
Van Cannon (Duties same as other attendants.)	540
Mary Clark, female attendant at free bathhouse (Duties are to have charge of the white women's bathing department and to keep the tubs and dressing rooms in a cleanly and sanitary condition.)	480
Mattie Fielding, female attendant at free bathhouse (Duties are to have charge of the colored women's bathing department and to keep the tubs and dressing rooms in a cleanly and sanitary condition.)	480

	Salary per year.
Miles E. Davis, policeman	$840
(Duties are to have general supervision over all government property and see that no stock or persons commit depredations on the reservation, observe and report all violations of department rules and regulations, give general information to strangers concerning the reservation, make arrests when necessity requires, and alternate the night and day watch with the other policemen.)	
Edward Wheelock, policeman	840
(Duties same as other policemen.)	
Richard L. Gaffney, mounted policeman for night duty	960
Jonathan A. Jordan, supervisor on the reservation	1,020
(Duties are to have charge of the distribution of the hot water and see that each bathhouse gets the amount allotted to it, and act as foreman of foresters and gardeners.)	
Patrick J. Dugan, laborer [a]	600
Peter Nelson, laborer [a]	600
William F. Jennings, laborer [a]	600
Thomas George, laborer [a]	600
Jap George [a]	600
Philander H. Bump, laborer [a]	600
Bishop H. Burrough, laborer [a]	600
Robert L. Stutts, laborer [a]	600
John Ussery, laborer [a]	600
Total	20,440

BATHHOUSE LEASES.

The different individuals and corporations now holding leases for hot-water privileges from the government reservation, also ground leases, together with the date and expiration of said leases, are given in the following table:

Hot water and ground leases.

Name of bathhouse, etc.	Lessee.	Tubs.	Date of lease.	Expiration of lease.
Alhambra	Alhambra Bath House Co	24	Feb. 28, 1894	Feb. 27, 1914
Arlington	Arlington Hotel Co	32	Mar. 3, 1892	Mar. 2, 1912
Majestic	Avenue Hotel Co	20	Jan. 1, 1903	Dec. 31, 1912
Ozark Sanatorium	Ozark Sanatorium Co	4	Sept. 16, 1905	Sept. 15, 1907
Eastman	New York Hotel Co	40	Nov. 26, 1892	May 11, 1912
Great Northern	Fannie G. Williamson	17	May 25, 1897	May 14, 1912
Hale	Roots & Eastman [b]	23	Jan. 1, 1893	Dec. 31, 1907
Horse Shoe	D. Fellows Platt [b]	30	Jan. 1, 1895	Dec. 31, 1909
Hot Springs	C. H. V. and G. M. Smith	16	Jan. 1, 1903	Dec. 31, 1912
Imperial	Chas. N. Rix and Mary E. Barns [b]	25	Jan. 1, 1902	Dec. 31, 1906
Lamar	M. C. Tombler and G. H. Buckstaff	30	Jan. 1, 1897	Dec. 31, 1916
Magnesia	Chas. B. Platt [b]	30	Jan. 1, 1895	Dec. 31, 1909
Maurice	Maurice, Convers & Maurice	24	Jan. 1, 1897	Dec. 31, 1916
Ozark	F. P. Sorrells and F. B. Latta	26	Jan. 1, 1904	Dec. 31, 1913
Palace	Samuel W. Fordyce	23	Jan. 1, 1907	Dec. 31, 1921
Park	Park Hotel Co	40	May 12, 1892	May 11, 1912
Rector	Elias W. Rector	12	Apr. 16, 1904	Apr. 15, 1914
Rockafellow	Mahala J. Rockafellow	18	July 1, 1901	June 30, 1916
St. Joseph's Infirmary	Sister Scholastica	8	Feb. 1, 1904	Jan. 31, 1914
Superior	Robert Proctor and R. A. Simpson [b]	16	Sept. 15, 1896	Sept. 14, 1906
Waverly	New Waverly Hotel Co.[c]	20	Mar. 24, 1893	Mar. 23, 1913
Rammelsberg	Gilbert E. Hogaboom, Aaron H. and Milo R. Buckstaff, Sinclair Mainland.[b]	18	Dec. 31, 1906	Dec. 31, 1906
Moody	Nicholas M. Moody [b]	12	July 1, 1900	June 30, 1919
Crystal	Colored Knights of Pythias	12	Aug. 1, 1903	July 31, 1913
Horse Pool	Simon Cooper	[d] 2	Jan. 7, 1908	Oct. 29, 1912

[a] Duties of laborers are to cultivate and care for shrubbery and flowers, keep up roads, drives and walks, and make and maintain other improvements on the reservation under direction of the superintendent.

[b] Tenants holding over.

[c] Destroyed by fire January 23, 1910.

[d] Water sufficient to supply two tubs.

Hot water and ground leases—Continued.

Name of bathhouse, etc.	Lessee.	Tubs.	Date of lease.	Expiration of lease.
Eastman Hotel[a]	New York Hotel Co.	[b] 24	May 12, 1892	May 11, 1912
Park Hotel[a]	Park Hotel Co.	6	do.	Do.
Moody Hotel[a]	Nicholas M. Moody	2	July 1, 1900	June 30, 1910
Ozark Sanatorium[a]	Ozark Sanatorium Co.[c]	6	Sept. 16, 1907	Sept. 15, 1912
St. Joseph's Infirmary[a]	Sister Scholastica	2	Feb. 1, 1904	Jan. 31, 1914
Arlington Hotel[a]	Arlington Hotel Co.	26	Mar. 3, 1892	Mar. 2, 1912
Ground lease				
Ground lease	Hot Springs Mountain Observatory Co.		Oct. 16, 1903	Aug. 31, 1913

[a] Water used in private bathrooms.
[b] Including extra water sufficient to supply one tub; authorized by department letter of January 13, 1891
[c] Tenants holding over.

The total tubbage of the various houses, including installations in the Eastman, Arlington, Park, and Moody hotels, Ozark Sanatorium, and St. Joseph's Infirmary, under the act of April 12, 1904, was 592 on June 30, 1910.

There are 24 bathhouses receiving hot water under lease with the department, of which 11 are on the permanent reservation and 13 on private property. In addition to these there is a lease to Simon Cooper for the horse pool, which is provided with 2 tubs for stock purposes. Most of these bathhouses are antiquated and are far from being up to date. In the adjustment and renewal of these leases the department should demand the erection of fireproof, modern, and absolutely sanitary bathhouses, with all conveniences which are required from the standpoint of modern hydrotherapy. No lease should be granted on the reservation which does not provide for at least 30 tubs. The reservation front is so valuable that instead of a ground rental the lease should provide for a minimum number of tubs at an adequate figure, and also for better bathhouses as well and a more extensive use of the waters on the reservation. All the water possible should be retained and used on the reservation, and while there is ample water to supply perhaps five more bathhouses, great caution should be exercised in granting further leases for the use of water off the reservation. It would be vastly better to double the capacity of the bathhouses now on the reservation, or at least to increase the capacity, than to allow leases off the reservation. I believe that during the last six months by constant vigilance on the part of the reservation watermen and other employees sufficient water has been saved to supply one or more bathhouses.

The schedule of prices for baths at the various bathhouses as prescribed by the department is as follows:

Table of maximum rates for single baths and course of 21 baths, approved January 27, 1909.

Name of bathhouse.	Single bath.	21 baths.	Name of bathhouse.	Single bath.	21 baths.
Arlington	$0.50	$10	Ozark	$0.25	$4
Alhambra	.30	5	Ozark Sanatorium	.35	6
Majestic	.40	7	Park	.50	10
Eastman	.50	10	Palace	.40	7
Great Northern	.40	7	Rockafellow	.35	6
Hale	.40	7	Rammelsberg	.20	3
Horse Shoe	.25	4	Superior	.35	6
Hot Springs	.40	7	St. Joseph's Infirmary	.40	7
Imperial	.45	8	Waverly	.35	6
Lamar	.40	7	Moody	.40	7
Magnesia	.30	5	Crystal (colored)	.25	4
Maurice	.40	7	Rector	.40	7

Business of bathhouses, fiscal year ended June 30, 1910.

Name of bathhouse.	Whole tickets.	Half tickets.	Quarter tickets.	Single paid baths.	Number of baths sold.	Number of baths redeemed.	Net paid baths.
Alhambra	1,493	864	....	3,150	41,650	5,049	36,601
Arlington	1,231	1,002	....	7,160	43,031	5,005	36,75[illegible]
Crystal (colored)	298	569	....	867	12,815	557	12,258
Eastman	399	287	....	2,333	13,582	1,603	11,979
Great Northern	436	311	38	1,841	13,836	1,460	12,376
Hale	1,110	759	....	3,013	32,803	2,669	30,134
Horse Shoe	1,713	1,363	....	836	40,439	2,985	37,454
Hot Springs	593	322	....	969	15,937	1,664	14,273
Imperial	1,564	816	....	2,392	41,612	3,801	37,811
Lamar	2,000	1,408	293	2,091	57,644	6,532	51,112
Magnesia	1,601	555	....	638	39,808	4,232	35,576
Majestic	1,711	491	....	690	41,531	6,056	35,475
Maurice	2,340	1,137	....	364	60,874	8,514	52,360
Moody	611	703	....	993	20,854	1,849	19,005
Ozark	3,442	2,020	828	2,193	98,815	10,085	88,730
Ozark Sanitorium	144	1	....	239	3,271	364	2,6[illegible]
Palace	1,197	572	....	1,098	31,955	3,866	28,089
Park (first and second floors)	1,603	814	....	1,213	42,140	5,706	36,434
Rammelsberg	1,668	1,211	726	2,630	53,398	5,600	47,798
Rector	558	247	56	1,098	15,556	2,158	13,4[illegible]
Rockafellow	1,454	855	....	1,059	40,143	3,072	37,071
St. Joseph's Infirmary	506	135	....	158	12,134	337	11,797
Superior	737	254	31	525	17,960	2,060	15,900
Waverly	445	408	....	444	13,869	1,642	12,227
Total	28,854	17,104	1,972	37,994	805,678	86,826	716,9[illegible]

Name of bathhouse.	Number of complimentaries.	Amount paid for redeemed baths.	Total receipts less redemption.	Total expense of operation.	Net loss.	Net profits.
Alhambra	473	$1,262.25	$9,150.25	$5,786.10	....	$3,364.15
Arlington	....	2,502.50	18,397.50	10,415.85	....	7,981.65
Crystal (colored)	....	111.45	2,353.30	2,852.61	$499.31	....
Eastman	....	801.50	5,790.00	3,603.70	....	2,186.30
Great Northern	....	365.30	3,147.10	3,253.58	106.48	....
Hale	....	934.15	10,546.90	5,325.00	....	5,221.90
Horse Shoe	538	587.00	9,158.20	4,792.01	....	4,366.19
Hot Springs	350	484.15	5,181.45	4,141.50	....	1,039.95
Imperial	1,268	1,480.35	13,090.85	5,283.02	....	7,807.83
Lamar	....	2,286.30	17,932.00	8,927.63	....	9,004.37
Magnesia	265	1,058.00	8,525.90	5,330.57	....	3,195.33
Majestic	380	2,119.60	11,851.90	5,249.08	....	6,602.82
Maurice	....	2,980.05	17,525.05	9,007.22	....	8,517.83
Moody	....	647.25	6,484.20	3,066.25	....	3,417.95
Ozark	818	2,017.00	17,167.00	5,466.00	....	11,701.00
Ozark Sanitorium	....	190.20	600.90	1,103.90	503.00	....
Palace	....	1,353.15	9,412.15	6,127.00	....	3,285.15
Park (first and second floors)	....	2,204.80	17,521.30	10,519.00	....	7,002.30
Rammelsberg	408	841.35	6,948.15	3,499.00	....	3,580.65
Rector	....	755.30	4,552.40	3,019.67	....	1,532.73
Rockafellow	80	921.85	10,737.75	5,061.40	....	5,676.35
St. Joseph's Infirmary	....	120.70	3,957.00	1,503.68	....	2,453.32
Superior	503	621.80	4,731.45	3,625.75	....	1,105.70
Waverly	575	492.65	3,154.20	....	....	....
Total	5,658	27,138.65	217,916.90	116,959.52	1,108.79	90,043.6[illegible]

The attendant's fee charged in all bathhouses is $3 per course of 21 baths, $1 per week, and 15 cents for a single bath. The reports show that the net amount paid the attendants from July 1, 1909, to June 30, 1910, inclusive, is $102,737.38. This amount is exclusive of any tips or presents received by them.

Total number of baths given during year.

Total number of paid baths	716,963
Total number of baths at free bathhouse	200,048
Total number of complimentary baths[a]	5,658
Total	922,669

Total receipts for baths for year at all bathhouses, less redemptions	$217,916.90
For year 1909	196,701.40
Net gain for year	21,215.50

OFFICIAL INSPECTIONS.

During the past year Hot Springs has been visited by the chief clerk of the Interior Department, Clement S. Ucker, and his assistant, W. B. Acker, also the former Surgeon-General of the Army, Gen. R. M. O'Reilly. These gentlemen were all sent here at the instance of the Secretary of the Interior for the purpose of planning extensive improvements and a progressive administration for the Hot Springs Reservation. Their coming has stimulated the bathhouse lessees to furnish the very best bathing facilities, and in the near future several magnificent new bathhouses will be constructed on the reservation.

RECEIPTS AND DISBURSEMENTS.

Receipts and disbursements, Hot Springs Reservation.

RECEIPTS.		
Balance, Hot Springs fund, July 1, 1909		$29,217.29
Receipts for fiscal year ended June 30, 1910:		
Water rents	$31,440.00	
Ground rents	5,100.00	
Total receipts		36,540.00
Grand total		65,757.29
DISBURSEMENTS.		
Salaries for fiscal year	$20,377.50	
Repairs, improvements, incidentals, and miscellaneous supplies	7,581.88	
Expended by special disbursing agent		$27,959.38
Expended by the department		442.59
Total disbursements		28,401.97
Balances June 30, 1910:		
In United States Treasury	$35,514.70	
Assistant treasurer United States, St. Louis, Mo	1,600.00	
In hands of special disbursing agent	240.62	
Available balance, Hot Springs fund, July 1, 1910		37,355.32
Grand total		65,757.29

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[a] Complimentary baths stopped February 20, 1910.

Under special authority from the department, the following amounts were expended for improvements during the year:

Expenditures for improvements.

Protection block 114, sidewalks, etc	$414.86
Purchase of wagons, tools, benches, etc., and repairs to park benches	371.80
Construction of retaining walls and improvements of mountain roads and gutters	286.35
New signs for reservation	49.80
Purchase of ornamental trees, shrubbery, etc	278.80
Purchase of 2 white duck suits and caps for "white wings," on reservation front	15.00
Printing list of registered physicians	7.00
Purchase of soil	190.50
Installation of Tungsten electric-lighting system	1,346.42
Painting exterior and interior free bathhouse	1,648.58
Plumbing, free bathhouse	361.06
Repairs to lockers, etc., free bathhouse	361.06
Repairs to superintendent's office	204.67
Total	5,268.44

The above amounts have all been disbursed by the superintendent as special disbursing agent, and are included in the table of disbursements.

Substantial and extensive improvements and repairs have been authorized for the superintendent's office, and superintendent's official residence, Whittington Lake Park, but these expenditures do not come within the period covered by this report.

CITY OF HOT SPRINGS.

Hot Springs is a city of about 16,000 resident population, with churches of all denominations, public and private schools, a fine street railway system, waterworks, electric and gas lights, well-equipped fire department, local and long-distance telephone systems, metropolitan police system, fine city auditorium, and a magnificent race track and state fair grounds. There are about 600 hotels and boarding houses, which furnish all grades of accommodation for visitors. A fine tennis court in Whittington Park Reservation is always open to the public and a new 18-hole golf link course has just been completed. Hot Springs is reached by two trunk lines—St. Louis, Iron Mountain and Southern, and the Rock Island system.

In conclusion, I may be pardoned in saying that the great benefits and pleasures derived by the many thousands of visitors during the past year augurs an unprecedented future for this resort. Better knowledge of the curative value of these waters, the favorable climatic conditions, and the constant improvements in the equipment of the bath houses and in general accommodations will result in a steady increase in the popularity of Hot Springs as a resort.

I have the honor to be, very respectfully, your obedient servant,

Harry H. Myers,
Superintendent.

The Secretary of the Interior.

APPENDIX.

RULES AND REGULATIONS OF DECEMBER 29, 1909, AS AMENDED FEBRUARY 18, 1910, FOR THE GOVERNMENT OF ALL BATHHOUSES RECEIVING HOT WATER FROM THE UNITED STATES RESERVATION.

The superintendent of the Hot Springs Reservation is directed to enforce a prompt and faithful compliance with the following rules:

RULE 1.—Bath houses or hotels will be allowed such number of tubs as the Secretary of the Interior may, in his discretion, deem proper and necessary for the public service and the amount of hot water will justify.

RULE 2.—The constant flow of hot water for vapor or other baths, even during business hours, or the unnecessary waste of water in any manner, is strictly prohibited, and will, if continued after written notice from the superintendent to stop such waste of water, be considered by the department sufficient grounds for the cancellation of the lease of such offending lessee.

RULE 3.—Rentals must be paid quarterly in advance, at the office of the superintendent, and if not paid within five days from the beginning of each quarter the supply of water may be cut off.

RULE 4.—The charge for baths at the different bathhouses shall be at the rates fixed by the Secretary of the Interior, and no bath tickets shall be sold for more than said rate, and then only to such persons as intend to actually use them for bathing. In event of charges in a less amount being exacted for baths, such new rate shall at once be reported to the superintendent, and, when approved by the department, shall thereafter become the maximum rate. No bath ticket shall be sold except at the office of the bathhouse where the bath is to be given, and tickets must show the date when issued, the serial number, the number of baths for which issued, the full name of the purchaser, and the amount paid therefor. Bath tickets shall be redeemable for the same proportionate price for which they were sold, when presented by the original purchaser: *Provided*, That when less than seven baths have been taken on any ticket presented for redemption, the bathhouse may charge the rate for single baths for the number of baths taken on said ticket. No bath ticket or part of a ticket shall be reissued after having been redeemed. No bath house receiving water from the Hot Springs Reservation will be permitted to issue complimentary bath tickets. The renting and selling of bath robes, towels, soap, toilet articles, or articles of merchandise in bath houses is prohibited.

RULE 5.—The owners or managers of bathhouses receiving waters from the Hot Springs Reservation are prohibited from bathing in said bathhouses persons stopping at any hotel, boarding house, or rooming house which has a drummer or solicitor on trains or the owner of which drums or solicits on trains, or who has employed in or about such house any inside man or person engaged in drumming or soliciting business for doctors or bathhouses; also the owners or managers and the employees of such bathhouses are absolutely prohibited from either directly or indirectly reflecting on or questioning the integrity of the hot-water supply of any other bathhouse, or of claiming superiority of its own supply of hot water over that furnished from the springs on the reservation to other bathhouses. Upon evidence of violation of this rule the superintendent shall report the facts, with his recommendation, to the Secretary of the Interior, looking to the shutting off of the water from any bathhouse or canceling the lease, as the department may determine.

RULE 6.—Bathhouse attendants shall be allowed to charge for their services not exceeding 15 cents for a single bath, $1 per week, or $3 per course of 21 baths, to be collected for the attendant by the bathhouse manager and properly accounted for by him to the attendant. The services of the attendants shall include all the necessities of the bath, except towels and bath robes, laundering bath robes, rubbing mercury, and handling helpless invalids. They shall be required to keep themselves in a neat and cleanly condition, both in person and in dress, and may be required to make good any damages accruing from breakage or neglect of duty. It shall be optional with the bather whether he employ an attendant or not. No person shall be employed or permitted to serve or occupy space in any bathhouse as a mercury rubber or as a masseur without the approval of the superintendent first had and obtained; and every person so employed or serving shall be subject and amenable to the rules and regulations the same as attendants and other bathhouse employees.

RULE 7.—The payment of any sum of money or anything of value, either directly or indirectly, by any bathhouse owner, manager, clerk, or attendant as compensation for drumming customers to any bathhouse, or allowing public drummers, drumming doctors, hotel or boarding-house proprietors who are drummers, or persons who work with them as inside men, to bring persons or show them through, or to loiter in or about any bathhouse, is positively forbidden. Upon evidence of violation of this rule, the superintendent shall report the facts, with his recommendation, to the Secretary of the Interior, looking to the shutting off of the water from any bathhouse or canceling the lease, as the department may determine.

RULE 8.—The lessee of each bathhouse shall cause to be kept a full and correct daily register of each bath given, the number and kind of bath tickets sold, and the number of complimentary tickets, if any, issued each day, etc., such form of register to be approved by the superintendent and a copy therefrom of each day's business to be forwarded to the superintendent daily. No person shall be allowed to bathe without a numbered ticket being issued and a record of the same being kept, and report thereof duly certified by the manager filed with the superintendent on the first day of each month as paid, complimentary, or free baths, together with any information he may have showing a violation of the bathhouse rules and regulations which may be susceptible of proof.

RULE 9.—All bathhouses receiving deposits of jewelry, money, or other valuables from bathers must provide means satisfactory to the superintendent of the reservation for the safe-keeping thereof; it is to be understood, however, that the Government assumes no responsibility in the premises. All losses must be promptly reported to the superintendent by the bathhouse manager.

RULE 10.—An applicant for baths who is under medical treatment shall not be permitted to bathe in any bathhouse supplied with hot water from the Hot Springs Reservation, unless said applicant presents satisfactory evidence that he or she is the patient of a physician who is duly registered at the office of the superintendent as qualified to prescribe the waters of the hot springs, and who is known not to engage in drumming for custom: *Provided*, That every applicant for baths, not under the care of a registered physician, shall be required to make a certificate to be filed with the bathhouse manager that he or she is not under the care of any physician, and should such applicant subsequently employ, consult, or take treatment from any physician while taking baths, then in such case, he or she will immediately notify the bathhouse manager of such fact. The violation of this rule by the owner, manager, or any employee of a bathhouse receiving hot water from the reservation will result in the cutting off of the water from the bathhouse or the canceling of the lease, as the department may determine.

RULE 11.—Physicians desiring to prescribe the waters of the hot springs, either internally or through the medium of baths, must first be registered at the office of the superintendent of the reservation, and shall use only such uniform form of bathing directions as meet with the approval of the superintendent. Registration will be accorded only to such physicians as are found, by a board designated by the Secretary of the Interior, to have proper professional qualifications and character and who do not engage in drumming for custom. No physician who shall engage in the solicitation of patronage through the medium of drummers or otherwise shall be or remain registered. In case any person who, in violation of these regulations, bathes or attempts to bathe, or enters or attempts to enter upon the Hot Springs Reservation to bathe, shall have the permit of a physician therefor, such physician shall be liable to the penalties provided in the act of April 20, 1904, unless he is regularly registered, but the bather or the person attempting to bathe shall not be liable to the penalties of said act unless it shall be made to appear that he knew or had reason to believe that the physician giving him the permit to bathe was not regularly registered.

RULE 12.—If a charge is made to the superintendent in writing under oath, supported by the affidavits of two or more witnesses, that a registered physician has violated any of the laws and regulations pertaining to the government of the bathhouses receiving hot water from said reservation, he shall at once be cited to appear on a day to be named, and within not exceeding fifteen days thereafter, before the board of registration and show cause why his name should not be stricken from the register of physicians authorized to prescribe the waters of said springs, and pending investigation and final action upon such charges the right of such physician to prescribe the hot waters may be suspended by the board of registration. The person against whom such complaint is made shall have the right of filing written interrogatories pertinent to the issue to such complainants or witnesses, to be answered by them under oath, and may submit within twenty days thereafter counter affidavits in answer to the charges or the matters contained in the affidavits of said witnesses.

The complainant witnesses may file rebuttal affidavits within ten days after the service upon them of said counter affidavits, and the hearing of said charges shall be had on the record aforesaid. An appeal from the decision of said board and upon said record may be taken within seven days from such decision to the Secretary of the Interior.

If upon consideration of the complaint the charge is not sustained, the suspension will be immediately removed. If, however, such charge is sustained, or if default be made, the name of the physician shall be stricken from the registered list.

RULE 13.—Persons violating any of the foregoing regulations within the purview of the act of April 20, 1904, entitled "An act conferring jurisdiction upon United States commissioners over offenses committed in a portion of the permanent Hot Springs Mountain Reservation, Arkansas," and the act of March 2, 1907, amendatory thereof, will be deemed guilty of a misdemeanor, and be subjected on conviction to the payment of a fine, as provided in said act of April 20, 1904, of not exceeding $100, and be adjudged to pay all costs of the proceeding.

RULE 14.—All bathhouses shall be kept in a neat, clean, and sanitary condition, and all sewage and waste water properly conducted away, and all underdrainage kept in perfect order. The water-closets shall have sufficient and free connection with the public sewers and be kept in the best order and with the best plumbing furnishings and appliances. Lessees of bathhouses on the permanent reservation shall, under the direction of the superintendent, cultivate and maintain a part of the bathhouse park in front of their respective bathhouses, the space for each to cultivate to be allotted by the superintendent.

RULE 15.—Each bathhouse manager, clerk, and attendant shall be required to have a full and complete understanding of the Bath-House Rules and Regulations before entering upon his duties.

The superintendent is authorized to require the discharge of any bathhouse manager, clerk, attendant, mercury rubber, or masseur for bathhouse drumming or refusing or neglecting to carry out the Bath-House Rules and Regulations according to the true intent and meaning thereof. Any person discharged for cause from a bathhouse or removed at the request of the superintendent shall not be again employed by the same or any other bathhouse or permitted to render service in any bathhouse without the written consent of the superintendent. Managers must promptly report to the superintendent the name of any person so removed.

A neatly framed copy of the rules and regulations now in force, together with the prices of baths and attendant's fees, both separately and combined, printed in large black type on white cardboard, shall be conspicuously posted in the office of each bathhouse.

REGULATIONS OF JULY 7, 1900, FOR THE GOVERNMENT OF THE FREE BATHHOUSE.

These baths are provided and maintained by the United States pursuant to the requirements of the act of Congress approved December 16, 1878 (20 Stat., 258), for the use of the indigent only; neither the manager nor attendants are authorized to supply them to others.

The manager of the free bathhouse is required to enforce a strict observance of the following rules and regulations:

RULE 1. No baths will be supplied except on written applications made on blanks furnished at the office of the bathhouse, making full answers to the questions therein propounded; then if the applicant is found to be indigent (in accordance with the common acceptation of the word), the manager will issue a ticket good for 21 baths, which may be reissued on the same application if necessary.

RULE 2. Persons using the free baths are required to maintain quiet and orderly deportment while in or about the bathhouse, to abstain from the use of tobacco, either by chewing or smoking, while in the pool rooms, dressing rooms, or office, not to scatter rags or paper on the floor, or to loiter in or about the building after bathing.

RULE 3. The wanton exposure of person or entering any of the front rooms in a nude state, the use of loud, vulgar, or profane language, the use of rags, paper, soap, or any foreign substance in the pool rooms is positively prohibited.

RULE 4. Persons using these baths are not allowed to stand or sit on or in any way interfere with the water pipes or valves or to stand on the chairs or benches. All persons entering the house are required to clean their feet at the door and avoid as much as possible bringing dirt or mud on the floors. Boys over 5 years of age will not be allowed in the female department during bathing hours.

RULE 5. Any willful or repeated violation of these rules, or any disorderly or contemptuous conduct, will subject the persons so offending to suspension or expulsion, at the discretion of the superintendent of the reservation.

RULE 6. Neither the manager nor the government attendants shall be allowed to receive or become responsible for any valuables or to charge any fees for any service rendered to bathers which comes within the direct line of their duty.

RULE 7. The manager is required to enforce all the foregoing rules and to maintain good order in and about the bathhouse, to see that all indigent persons applying are supplied with baths, and to make a written report to the superintendent each month on blank forms supplied for that purpose. He may reject any application for free baths if he has reason to believe the applicant has made false answers in his written application, and the aggrieved may appeal to the superintendent of the reservation.

APPLICATION FOR BATHS AT THE GOVERNMENT FREE BATHHOUSE AT HOT SPRINGS, ARK.

DEPARTMENT OF THE INTERIOR.

HOT SPRINGS RESERVATION.

No. ———.

Persons desiring to use the free baths are required to answer the following questions, in writing, and sign the same, giving full name: Name, ———; town, ——; county, ——, State, ——; present address in Hot Springs: Street, ———; No. ——; native of what country, ———; age, —— years; have you a family? ——; how many in family? ——; occupation, ———; are you able to work? ——; are you employed now? ——; by whom? ———; in what capacity? ——; do you wish to bathe for your health? ——; with what disease are you afflicted? ———; how long afflicted? ——; are you under treatment of a physician at Hot Springs? ——; if so, give his name and address, ——; do you own any real estate? ——; what is the value of your personal property? $——; how much money have you? $——. *The act of Congress approved December 16, 1878 (20 Stat., 258), restricts the use of free baths to the indigent; in other words, to persons who are poor, needy, in want, or without means of comfortable subsistence.* Do you regard yourself as an indigent person? ——.

Persons accepting and using these baths are required to report to the manager once each week whether they are being benefited by the baths or not, and also when they discontinue bathing.

——— ———. [SEAL.]

HOT SPRINGS, ARK., ———, *19—*.

PENALTY FOR INJURING TREES AND FOR NOT EXTINGUISHING FIRES.

[Excerpt from an act entitled "An act to provide for determining the heirs of deceased Indians, for the disposition and sale of allotments of deceased Indians, for the leasing of allotments, and for other purposes," approved June 25, 1910 (36 Stat., 857).]

PROVIDING PUNISHMENT FOR DEPREDATIONS AND FOR NOT EXTINGUISHING FIRES ON PUBLIC LANDS.

SEC. 6. That section fifty of the act entitled "An act to codify, revise, and amend the penal laws of the United States," approved March fourth, nineteen hundred and nine (Thirty-fifth United States Statutes at Large, page one thousand and ninety-eight), is hereby amended so as to read:

"SEC. 50. Whoever shall unlawfully cut, or aid in unlawfully cutting, or shall wantonly injure or destroy, or procure to be wantonly injured or destroyed, any tree, growing, standing, or being upon any land of the United States which, in pursuance of law, has been reserved or purchased by the United States for any public use, or upon any Indian reservation, or lands belonging to or occupied by any tribe of Indians under the authority of the United States, or any Indian allotment while the title to the same shall be held in trust by the Government, or while the same shall remain inalienable by the allottee without the consent of the United States, shall be fined not more than five hundred dollars, or imprisoned not more than one year, or both."

That section fifty-three of said act is hereby amended so as to read:

"SEC. 53. Whoever shall build a fire in or near any forest, timber, or other inflammable material upon the public domain, or upon any Indian reservation, or lands belonging to or occupied by any tribe of Indians under the authority of the United States, or upon any Indian allotment while the title to the same shall be held in trust by the Government, or while the same shall remain inalienable by the allottee without the consent of the United States, shall, before leaving said fire, totally extinguish the same; and whoever shall fail to do so shall be fined not more than one thousand dollars, or imprisoned not more than one year, or both."

O